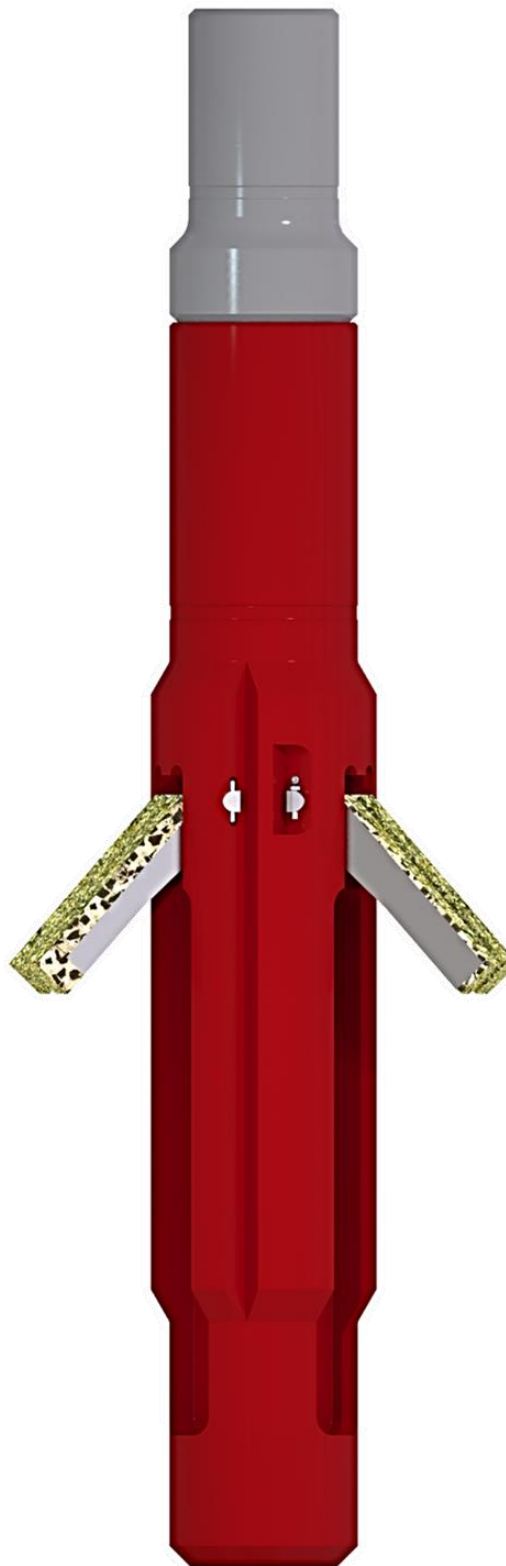


	1 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	5/27/2021	Jeremy Stone	Jeff Toulouse	

Technical Manual:

A-1 M23 and M24

Internal Hydraulic Casing Cutter



	2 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

TABLE OF CONTENTS

SECTION 1: INTRODUCTION	6
1.1 Purpose.....	6
1.2 Scope	6
1.3 Definitions	7
1.4 Safety	8
1.4.1 Statement of Compliance	8
1.4.2 Personal Protection Requirements (PPE)	8
1.5 Hazard Identification Symbols	9
1.6 Hazard Identification (HAZID)	10
SECTION 2: GENERAL INFORMATION	11
2.1 Overview	11
2.2 Applications	11
2.3 Features and Benefits	11
2.4 Specifications	12
2.5 Description of Features	13
2.6 Equipment	14
2.6.1 Casing Cutter Models	14
2.6.2 Knife Pin Configurations	14
2.7 Types of Cutter Knives	15
2.7.1 Crushed Carbide	15
2.7.2 Insert Dressed Knives	15
2.7.3 High-Angle Knives	15
2.8 Standard Assembly Components	16
2.8.1 Base Assembly	16
2.8.2 Accessory Parts	16
2.8.3 Optional Parts	16
2.9 Operation	17
2.9.1 Field Procedure	17
2.9.2 A-1 Casing Cutter Spreadsheets	17
SECTION 3: DISASSEMBLY	18
3.1 Introduction	18
3.2 General Information	18
3.3 Equipment Required	18
3.4 Special Tools	18

	3 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

3.5	Assembly Components Diagram.....	19
3.6	Disassembling the Casing Cutter	20
3.7	Indicator Subassembly.....	29
3.7.1	Equipment Required.....	29
3.7.2	Indicator Components Diagram	29
3.7.3	Disassemble the Indicator	30
3.8	Piston Subassembly.....	33
3.8.1	Introduction.....	33
3.8.2	General Information	33
3.8.3	Equipment Required.....	33
3.8.4	Piston Assembly Diagram	34
3.8.5	Disassembling the Piston.....	35
SECTION 4: INSPECTION		38
4.1	Introduction	38
4.2	Inspection of Individual Components	38
4.2.1	Tool Joint Connections	38
4.2.2	Top Sub.....	38
4.2.3	Cutter Body.....	38
4.2.4	Knife Pockets	39
4.2.5	Knife Pin.....	39
4.2.6	Pin Holes – Body	40
4.2.7	Knives	40
4.2.8	Knife Rest Bushing	40
4.2.9	Piston.....	41
4.2.10	Indicator Bushing	41
4.3	Inspection Criteria	42
SECTION 5: REPAIR.....		43
5.1	Casing Cutter Body: Knife Pin Holes	43
5.1.1	Introduction.....	43
5.1.2	Equipment Required.....	43
5.1.3	Pin Hole Rework Specifications	43
5.1.4	Rework Instructions.....	44
5.2	Knife Rest Bushing.....	46
5.2.1	Introduction.....	46
5.2.2	Equipment Required.....	46
5.2.3	Knife Rest Bushing Rework Drawing: 12.0 M23 & M24 Casing Cutter	47
5.2.4	Knife Rest Bushing Rework Drawing: 8.25" OD M23 Casing Cutter	48
5.3	Knife Retaining Shear Screws.....	49
5.3.1	Introduction.....	49
5.3.2	Equipment Required.....	49
5.3.3	Knife Retaining Shear Screw Rework Drawing: 8.25 OD, 12.0 OD M23 & M24 Casing Cutter	50

	4 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

SECTION 6: ASSEMBLY 52

6.1	Introduction	52
6.2	General Information	52
6.3	Equipment Required.....	52
6.3.1	Special Tools.....	52
6.4	Assembling the Indicator	53
6.5	Assembling the Piston	58
6.5.1	8.25" OD Piston Assembly Component Diagram.....	58
6.5.2	12.0" OD Piston Assembly Component Diagram.....	59
6.5.3	Assembling the Piston	60
6.6	Assembling the Casing Cutter.....	63
6.6.1	Install the Knives.....	65
6.6.2	Install the Piston Subassembly	70
6.6.3	Install the Indicator Subassembly.....	71
6.7	How to measure Knife Length	73
6.7.1	Equipment Required.....	73
6.7.2	Measuring Knife Length.....	74
6.8	Setting the Indicator	75
6.8.1	Introduction.....	75
6.8.2	General Information	75
6.8.3	Equipment Required.....	75
6.8.4	Instructions for setting the indicator.....	76

SECTION 7: PARTS LISTS AND ILLUSTRATIONS 83

7.1	Introduction	83
7.2	General Information	83
7.2.1	Standard Assemblies	83
7.2.2	Item Numbers.....	83
7.2.3	Parts Lists.....	83
7.2.4	Part Numbers	83
7.3	3.63" OD M23 Casing Cutter	84
7.4	4.25" OD M23 Casing Cutter	88
7.5	5.50" OD M24 Casing Cutter	92
7.6	7.25" OD M24 Casing Cutter	96
7.7	8.25" OD M23 Casing Cutter	99
7.8	9.5" OD M23 Casing Cutter	103
7.9	12.00" OD M23 Casing Cutter.....	107
7.10	12.00" OD M24 Casing Cutter.....	112
7.11	17.00" OD M24 HD Casing Cutter	116

	5 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

7.12	Optional Nozzle Sizes.....	121
7.13	Redress Kits.....	122
7.14	Special Tools	123
SECTION 8:	TECHNICAL SPECIFICATIONS	124
8.1	Tool Joint Connections.....	124
8.2	Tightening Torques.....	125
8.3	Wrench Sizes.....	126
SECTION 9:	REFERENCE DOCUMENTS.....	127
9.1	Reference Source	127
9.2	Quality and Testing Specifications.....	127
SECTION 10:	DOCUMENT CHANGE RECORD	128

	6 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

SECTION 1: INTRODUCTION

1.1 Purpose

This manual provides technical reference information, standard assembly procedures, and guidance for operating, maintaining, inspecting, and repairing Weatherford's A-1 M23 and M24 Internal Hydraulic Casing Cutters.

1.2 Scope

- 1.2.1 The information collected in this manual includes tool specifications, assembly and disassembly instructions, illustrated part diagrams, bill of materials, inspection criteria, and technical reference data for A-1 M23 and M24 Internal Hydraulic Casing Cutters.
- 1.2.2 Operating procedures within this manual are limited to a description of function and basic usage of the tool. Checklists, forms, and field procedures are outside the scope of this manual and are addressed in separate documents (see reference section).
- 1.2.3 This document is intended to serve as a means for implementing standardized procedures, assembly configurations, and technical documentation across the Global Fishing Product Line.
- 1.2.4 The following equipment sizes are covered in this manual:
 - 03.63 OD M23 Casing Cutter
 - 04.25 OD M23 Casing Cutter
 - 05.50 OD M24 Casing Cutter
 - 07.25 OD M24 Casing Cutter
 - 08.25 OD M23 Casing Cutter
 - 09.25 OD M23 Casing Cutter
 - 12.00 OD M23 Casing Cutter
 - 12.00 OD M24 Casing Cutter
 - 17.00 OD M24 Casing Cutter

	7 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

1.3 Definitions

1.3.1 Acronyms and terms used in this manual are defined as follows:

Personal Protective Equipment (PPE): Includes all clothing and other worn work accessories designed to create a barrier against workplace hazards. Examples include safety goggles, hard hats, hearing protectors, gloves, respirators, aprons, and work boots.

JHA: Job Hazard Analysis

MOC: Management of Change

M23: Model number indicating the tool uses 3 knives

M24: Model number indicating the tool uses 4 knives

OD: Outside Diameter

ID: Inside Diameter

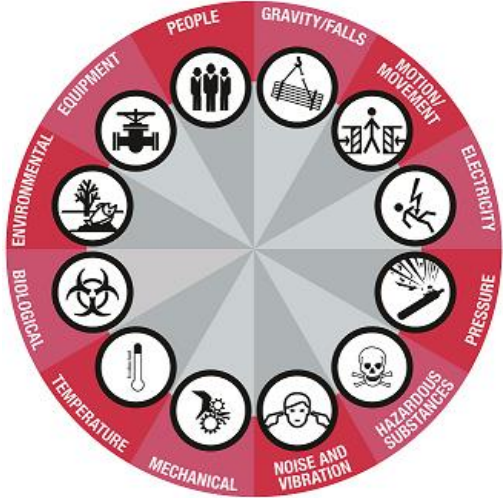
TWI: Technical Work Instruction

lbs.: Pounds

ft-lbs: Foot Pounds - Torque

	9 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

1.5 Hazard Identification Symbols

Hazard Identification Symbol Guidance		
	Gravity / Falls	The force caused by attraction of all other masses to the mass of the earth. Examples; falling object, collapsing roof, and a body tripping or falling.
	Motion / Movement	The change in position of objects or substances. Examples: vehicle, vessel, or equipment movement; flowing water; wind; and body positioning when lifting, straining or bending.
	Electricity	The presence and flow of an electric charge. Examples: Power lines, transformers, static charges, lightning, energized equipment, wiring, batteries.
	Pressure	Energy applied by a liquid or gas that has been compressed or is under a vacuum. Examples: pressure piping, compressed cylinders, control lines, vessels, tanks, hoses, and pneumatic and hydraulic equipment.
	Hazardous Substances	Including chemicals, radioactive, lithium batteries, explosives – The energy present in chemicals that inherently, or through reaction, has the potential to create a physical or health hazard to people, equipment or the environment. Examples: flammable vapours, reactive hazards, carcinogens or other toxic compounds, corrosives, pyrophorics, combustibles, oxygen-deficient atmospheres, welding fumes and dusts.
	Noise & Vibration	Sound is produced when a force causes an object or substance to vibrate and the energy is transferred through the substance in waves. Examples: equipment noise, impact noise, vibration, high-pressure release, and the impact of noise to communication.
	Mechanical	The energy of the components of a mechanical system, i.e., rotation, vibration, or motion within an otherwise stationary piece of equipment or machinery. Examples: rotating equipment, compressed springs, drive belts, conveyors, and motors.
	Temperature	The measurement of differences in thermal energy of objects or the environment, which the human body senses as either heat or cold. Examples: open flame, ignition sources, hot or cold surfaces, liquids or gases; steam; friction.
Hazard identification should be a systematic process and the wheel is used to ensure that the person(s) conducting the exercise have considered all categories and thus ensuring that the assessment is comprehensive. Each of the categories is considered in turn and hazards related the task/activity can be identified	Biological	Living organisms that can present a hazard. Examples: animals, bacteria, viruses, insects, blood-borne pathogens, improperly handled food, and contaminated water.
	Environmental	The impact of our surroundings. Examples: weather conditions, simultaneous operations, confined spaces.
	Equipment	Critical to Service Quality. Examples: critical installation, hold / witness point, special equipment, parameters, specifications.
	People	Specialized or additional training requirements over and above normal role-based requirements.

	10 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

1.6 Hazard Identification (HAZID)

1.6.1 The following hazards apply to all procedures in this manual:

Symbol	Work Steps	Hazard	Control
Motion/Movement 	Unloading equipment from delivery truck / standby box, transfer of equipment from / to inspection	Moving Objects	Proper slinging and handling technique
	Washing process	Projectiles and slick surfaces	Housekeeping, slip resistant boots, face shield.
Mechanical 	Maneuvering tools and equipment, when utilizing hand tools	Pinch points	Avoid areas of restriction / movement where digits / extremities can be pinched, trapped or crushed.
Equipment 	Assembly and disassembly, handling, lifting/crane operations	Unsecured equipment	The use of stands, fixtures, chains, etc. to secure equipment that have the potential of falling / tilting over. (i.e. dropped objects)

1.6.2 The following symbols will be used to indicate certain items of importance:

	Quality controls in place
	Important point
	Check off or record Information
	Visual Inspection required

	11 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

SECTION 2: GENERAL INFORMATION

2.1 Overview

- 2.1.1 Weatherford's hydraulically actuated A-1 M23 and M24 casing cutters cleanly cut a wide range of casing sizes and weights without special surface equipment, making them some of the most versatile and easy-to-operate tools of their kind. Cutting pipe of any size within range of the tool in use requires only a change of knife.
- 2.1.2 The rotary table, top drive, power swivel, or downhole motor can provide rotating power for these extremely rugged and efficient casing cutting tools. A-1 cutters can be run directly on the drill pipe or with drill collars; however, Weatherford recommends the use of drill collars in cutting operations and applications for which additional weight is needed, such as cutting from a floating vessel.
- 2.1.3 Weatherford's A-1 casing cutters are products of the company's MillSmart technology -an engineered approach to milling that encompasses a wide range of proven products, services, and technical resources, developed and refined by the world's largest and most experienced provider of milling and fishing services.

2.2 Applications

Cleanly cut a wide range of casing sizes and weights without special surface equipment.

2.3 Features and Benefits

- A1 casing cutters require no special surface equipment. Simplicity and a minimum of working parts make these cutters efficient, versatile, and rugged.
- Hydraulic actuation makes these cutters powerful, efficient and easy to use.
- The adjustable indicator bushing triggers a distinct pressure drop, providing one of many possible indicators that the cut is complete.
- All principal parts are manufactured from high-quality, heat-treated alloy steel to exacting tolerances, which extends the tool life and keeps the tool intact under the toughest operating conditions.
- Knives are dressed using Weatherford's MillSmart technology and the finest-quality tungsten carbide available, resulting in an outstanding reputation for milling performance.

	12 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

2.4 Specifications

A-1 Casing Cutter Specifications

Casing Size		Tool OD		Maximum Range				Assembly Part No.	
				Single String		Multiple Strings (Cemented)			
(in.)	(mm)	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)	M23	M24
4.50	60.34	3.63	92.08	9.625	244.48	7	177.80	109462	--
5.50	73.03	4.25	107.95	13.375	399.73	10.75	273.05	116163	--
7.00	177.80	5.50	139.70	20	508.00	13.375	339.73	--	114754
8.625	219.08	7.25	184.15	36	914.40	24	609.60	--	115698
9.625	244.48	8.25	209.55	60	1,524.00	36	914.40	115984	--
10.75	273.05	9.50	241.30	60	1,524.00	36	914.40	114777	--
13.375	399.73	12.00	304.80	60	1,828.80	42	914.40	114812	114816
18.625	473.09	17.00	431.80	60	1219.20	42	914.40	--	2856698

	13 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

2.5 Description of Features

Hydraulic activation:

Fluid is pumped through a jet in the top of the indicator, pushing the indicator stem down, applying force to the indicator bushing on top of the piston. The piston pushes on the heel of the knives, extending them outward into the casing.

Indicator assembly:

When the knives reach their desired sweep around 45° to 55° from vertical, the indicator spring is fully compressed. Fluid continues to push the piston down, separating the stem from the indicator bushing on the piston, allowing fluid to bypass the indicator stem. This creates a distinct pressure drop at the surface, which signifies that the knives are fully extended, and the pipe has been cut.

Cutter knives:

Cutting structure consists of high-quality crushed tungsten carbide or carbide inserts. The Insert dressed knives have been redesigned for increased performance and meet DS-1 inspection criteria.

Stabilizer Pads:

The stabilizer pads allow smaller OD cutters to be used in larger casing sizes and still maintain a centralized position to maximize cutting efficiency and reliability.

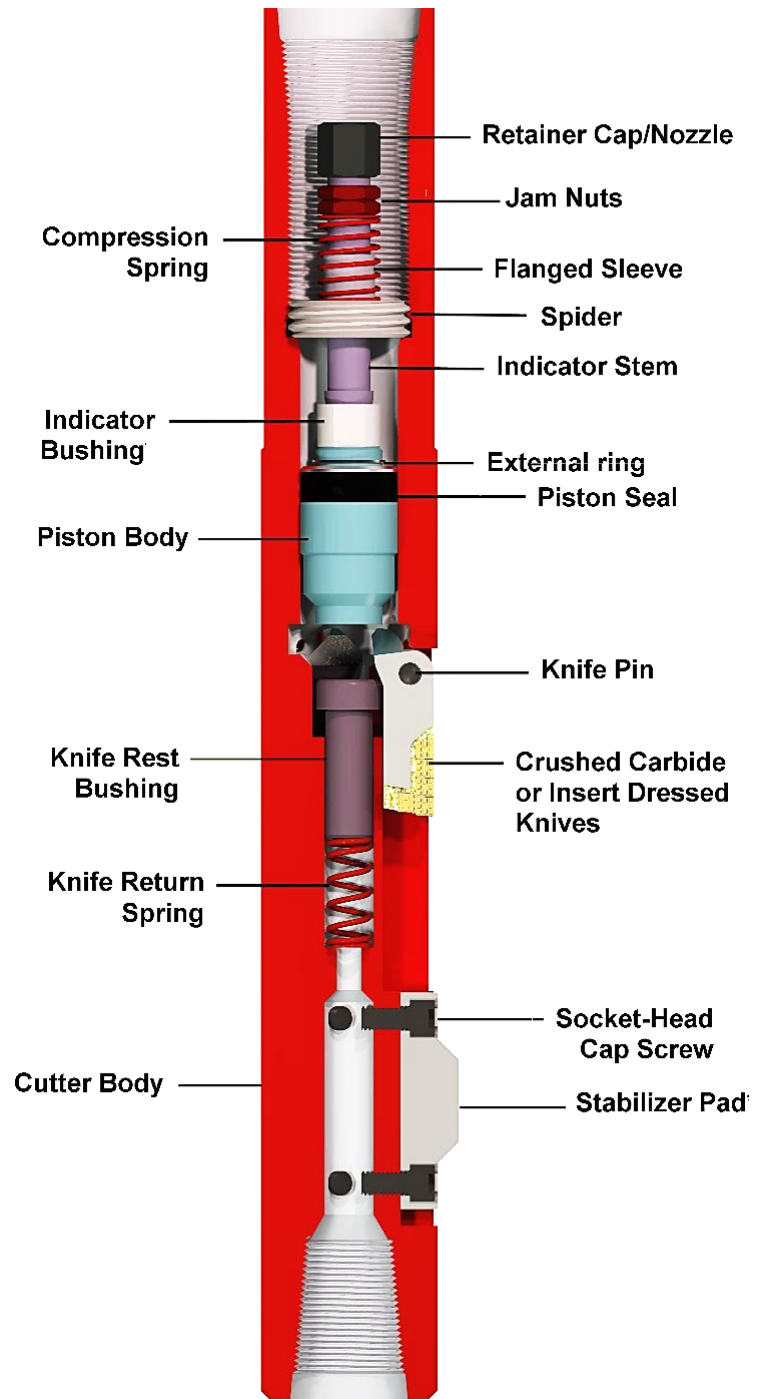


Figure 1 – 3.63" OD Casing Cutter

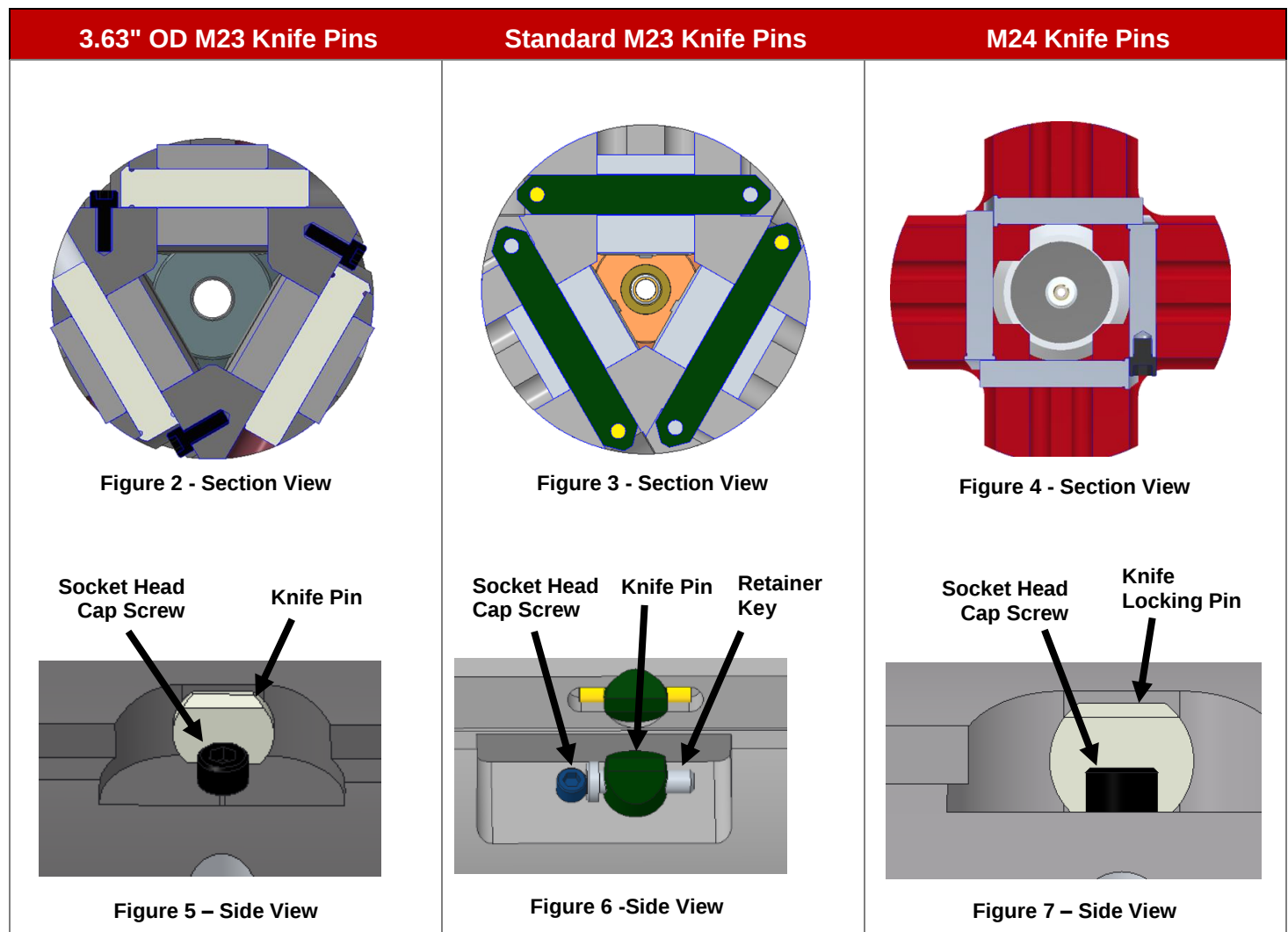
	14 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

2.6 Equipment

2.6.1 Casing Cutter Models

Weatherford's A-1 casing cutters are identified their M23 and M24 model numbers. The M23 model is equipped with three knives, while the M24 model uses four knives. The four-knife arrangement introduces a different knife pin configuration and method of securing the knife pins in place. Otherwise, the internal parts of the M23 and M24 are the same, and both models follow the same basic design and operation principal as all Weatherford casing cutters.

2.6.2 Knife Pin Configurations



	15 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

2.7 Types of Cutter Knives

2.7.1 Crushed Carbide

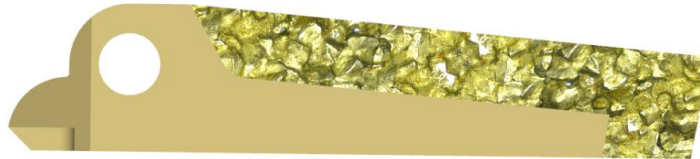


Figure 8

Cutter knives dressed with crushed carbide offer consistent performance, durability, and can be redressed multiple times. Carbide knives are available in various lengths that can cut 4-1/2" through 60" diameter pipe for single string, and up to 42" diameter for multistring cuts.

2.7.2 Insert Dressed Knives



Figure 9

Insert dressed knives offer increased performance up to 8 times faster cutting than standard crushed carbide knives. The latest version has been redesigned with 2 rows of 7-degree negative rake inserts and is dressed with Supacutt Xtreme carbide. The dressed area has been relocated in order to comply with DS-1 inspection criteria, and as a result this design has some limitations in multi-string applications.

Refer to the Knife selection charts in [Section 7: Parts List and Drawings](#).

2.7.3 High-Angle Knives

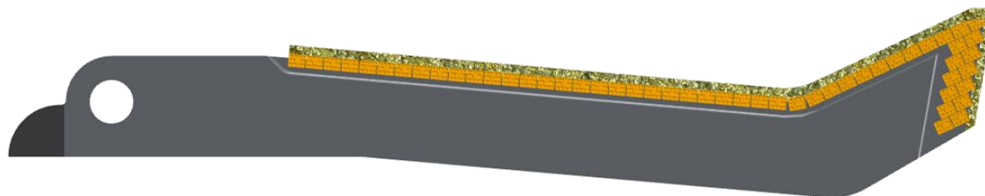


Figure 10

High-angle Knives are dressed similar to Insert Knives, with the addition of an angled section of the knife at the tip. Currently this design is only available for the 17" OD HD Casing Cutter with a maximum sweep ranging from 40" to 59".

	16 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

2.8 Standard Assembly Components

A-1 Casing Cutters are supplied as a base assembly that requires accessory parts such as knives, stabilizer pads, and bull nose subs in order to complete the assembly. Accessory parts are no longer included in the top-level assembly. Optional parts are non-standard size parts that can be ordered individually for specific applications. The standard version of an optional part is already included in the base assembly. This standard structure applies to all tool sizes.

2.8.1 Base Assembly

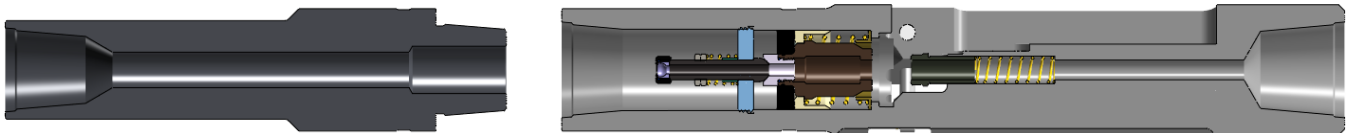


Figure 11 – Base Assembly

- Top sub, cutter body, and internal parts only.
- Does not include knives, stabilizer pads, or bull nose sub.

2.8.2 Accessory Parts



Figure 12 – Cutter Knife



Figure 13 – Bull Nose

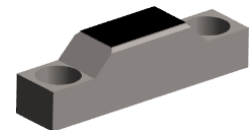


Figure 14 – Stabilizer Pad

- Essential to the function of the tool
- Not included in base assembly
- Required for a complete assembly
- Must be ordered in addition to base assembly
- Includes knives, bull nose sub, stabilizer pads

2.8.3 Optional Parts

- Non-standard part sizes or configurations available to order individually
- The standard version of the part is included in base assembly
- Includes special nozzles, indicator bushings, & special top subs

	17 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

2.9 Operation

2.9.1 Field Procedure

Operation of the tool is outside the scope of this Technical Manual. Refer to *[GL-INTS-OEPS-L4-743 Technical Work Instruction – Rotary Hydraulic Casing Cutter, Land/Fixed Installation](#)* for instructions on operating the tool.

2.9.2 A-1 Casing Cutter Spreadsheets

Before running the A-1 M23 or M24 Casing Cutter into the wellbore the hydraulic spreadsheets should be run to ensure that the cutter is fitted with the correct size flow indicator nozzle, cutter knives, pump output and surface pressure. The hydraulic spreadsheets below are available on OEPS Online.

- **HydraCut™** – Knife selection and recommended cutting speed
- **HydroBoost™** – Knife tip force, required flow rate

	18 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

SECTION 3: DISASSEMBLY

3.1 Introduction

These instructions describe the procedure for disassembling the A-1 casing cutter in preparation for storage or inspection while servicing the tool.

3.2 General Information

Proper cleaning is very important and should be done as soon as possible after each use of the tool. The entire unit, including internal working parts, is exposed to saltwater and drilling fluid chemicals.

3.3 Equipment Required

- Vertical vise or chain vise
- Jack stand
- Hex Bit Socket or Allen key set
- Punch or small bar
- Water or Kerosene
- Heavy wire or small rod with hook
- 2 Wrenches (for Jam Nuts)
- Wrench for Retainer Cap
- Long small diameter rod
- Wire Brush
- PPE

3.4 Special Tools

- Indicator Wrench

Refer to [7.14 Special Tools](#) for Indicator wrench specifications.

	19 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

3.5 Assembly Components Diagram

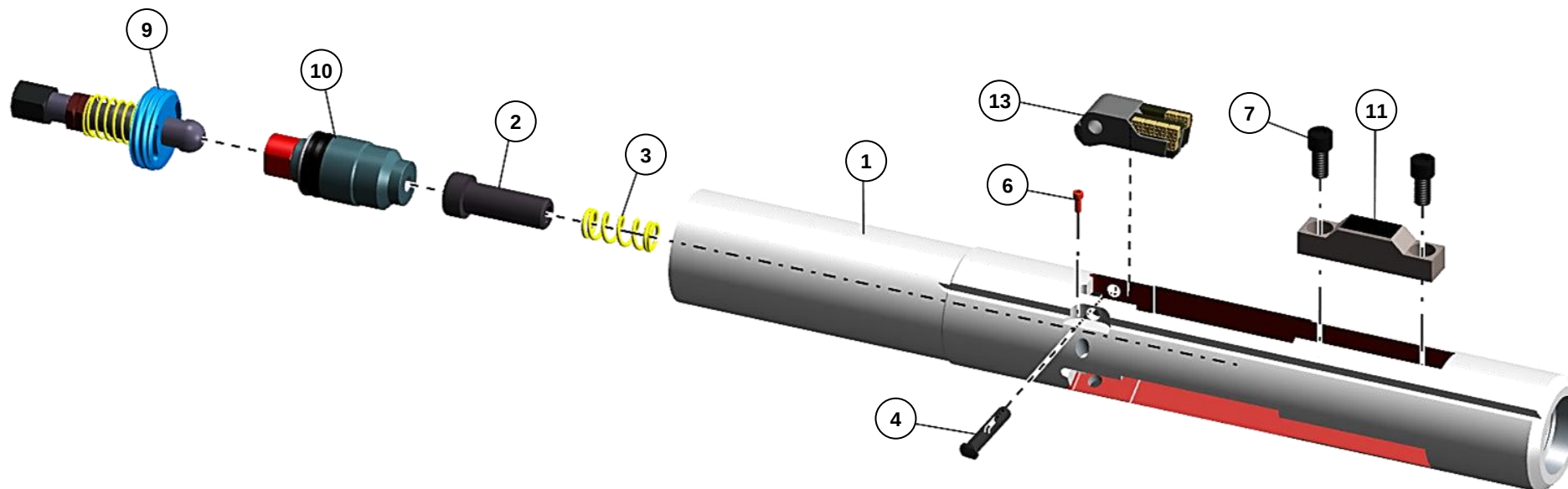


Figure 15 - 3.625 & 4.25 OD M23 Cutter Assembly

- | | |
|--|------------------------------|
| 1. Cutter Body | 9. Indicator assembly |
| 2. Knife Rest Bushing | 10. Piston Assembly |
| 3. Compression Spring | 11. Stabilizer Pad |
| 4. Knife Pins | 12. Bullnose Sub (not shown) |
| 5. Knife Locking Pin (M24 only, not shown) | 13. Knives |
| 6. Socket head cap screw | |
| 7. Screw, Stabilizer pad | |
| 8. Top Sub (not shown) | |

© 2021 Weatherford All Rights Reserved Proprietary and Confidential. This document is copyrighted and contains valuable proprietary and confidential information, whether patentable or unpatentable, of Weatherford. Recipients agree the document is loaned with confidential restrictions, and with the understanding that neither it nor the information contained therein will be reproduced, used or disclosed in whole or in part for any purpose except as may be specifically authorized in writing by Weatherford.

	20 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

3.6 Disassembling the Casing Cutter

1. Remove the top sub (8) and bull nose sub (12) from the cutter body (1) in the breakout unit. Ensure all safety precautions are followed.

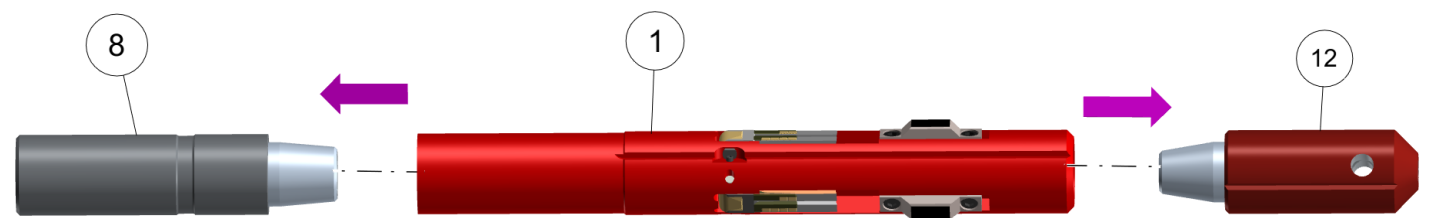


Figure 16

2. Place cutter body (1) in hydraulic vise and secure with chain.

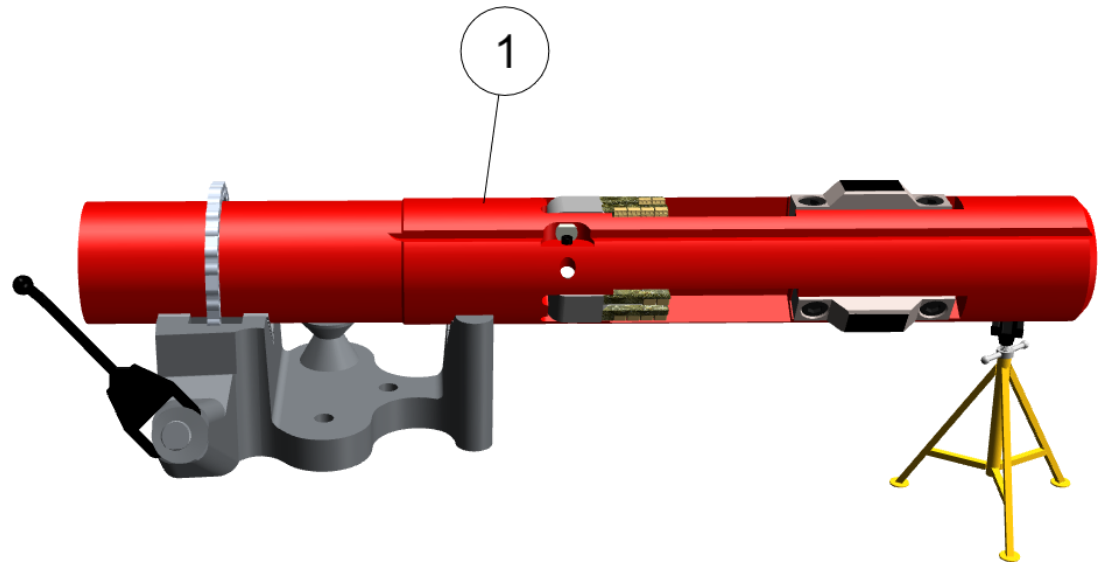


Figure 17



EQUIPMENT 	NOTE: A pipe jack stand should be used on the unsupported end of the cutter body if assembling the cutter in a horizontal position. A vertical vise can also be used. (Vise not shown in subsequent steps.)
---	--

	21 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

3. Remove the Knives: M23 Cutters



NOTE: For M24 Casing Cutters skip to step 4 - Remove the Knives: M24 Cutters

- a. Use the appropriate size hex socket bit or Allen key to remove the socket head cap screw (6) located in front of knife pin (item 4).

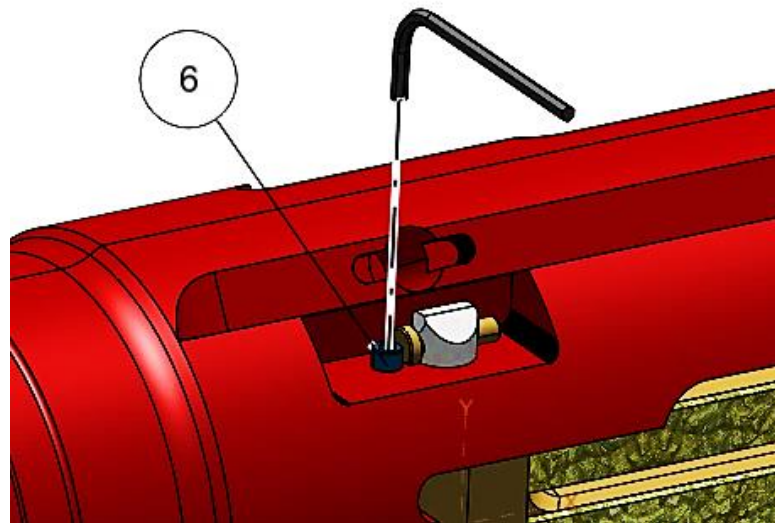


Figure 18

- b. Remove the knife pin retainer key (5) from the knife pin (4).

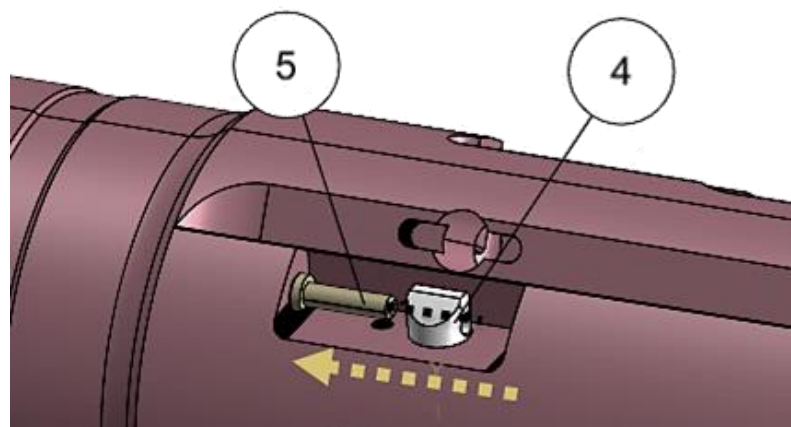


Figure 19



NOTE: The 3.625" OD casing cutter does not use a knife pin retainer key.

	22 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

4. Remove the Knives: M24 Cutters



NOTE: For M23 Casing Cutters skip to step 5

- a. Use the appropriate size hex socket bit or Allen key to remove the socket head cap screw (6) installed in the knife locking pin (5).

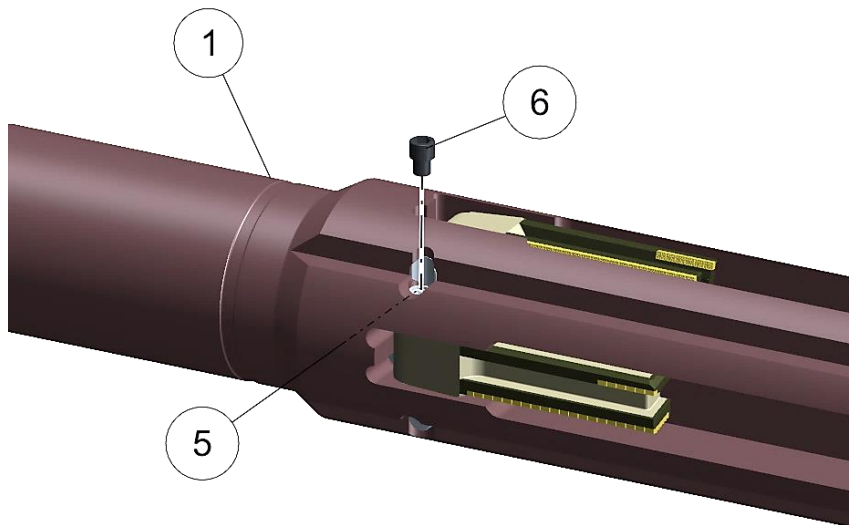


Figure 20

Continue to step 5 for all cutters.

	23 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

5. Elevate the knife (13) by lifting the lower end with one hand.



NOTE: While elevating the knife, have a helper elevate and hold other knives slightly higher than the knife being removed.

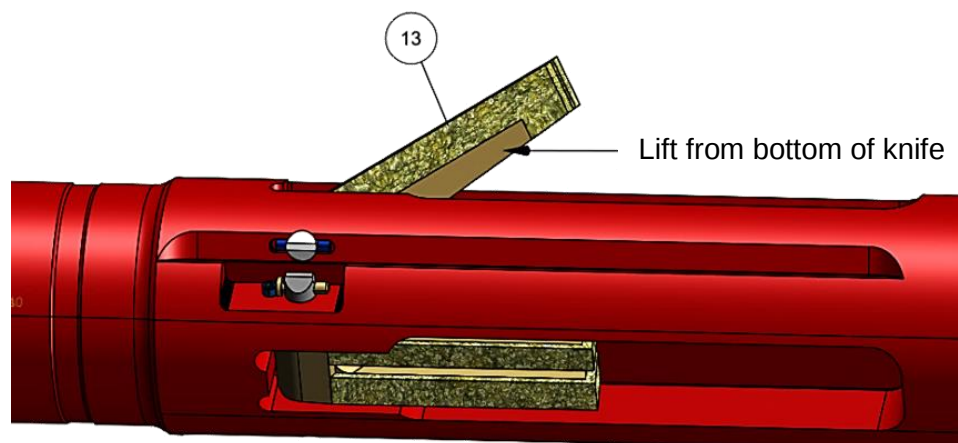


Figure 21



CAUTION: USE IMPACT RESISTANT GLOVES, TUNGSTEN CARBIDE DRESSING ON THE END OF THE KNIFE MAY BE SHARP ENOUGH TO CUT FINGERS. KNIVES ARE ALSO HEAVY AND THE POCKETS ARE A PINCH POINT.

6. With a punch or small bar, push out the knife pin (4) from right to left.

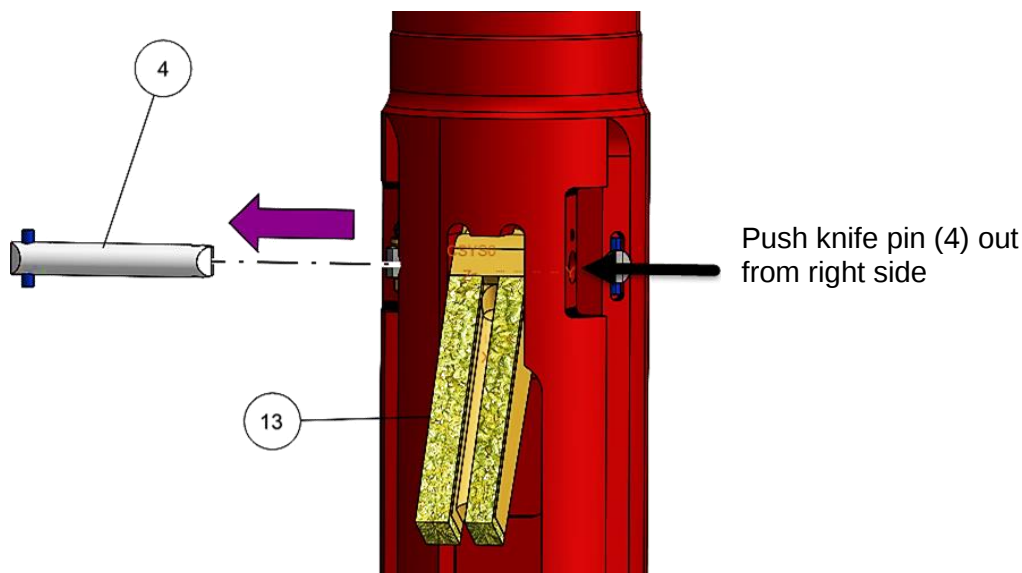


Figure 22



CAUTION: AVOID HAMMERING THE PIN. THIS PRESENTS A SAFETY RISK FOR A PROJECTILE INJURY. WEAR SAFETY GOGGLES IF A HAMMER MUST BE USED

	24 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

7. Remove knife (13) from cutter body (1) pocket.

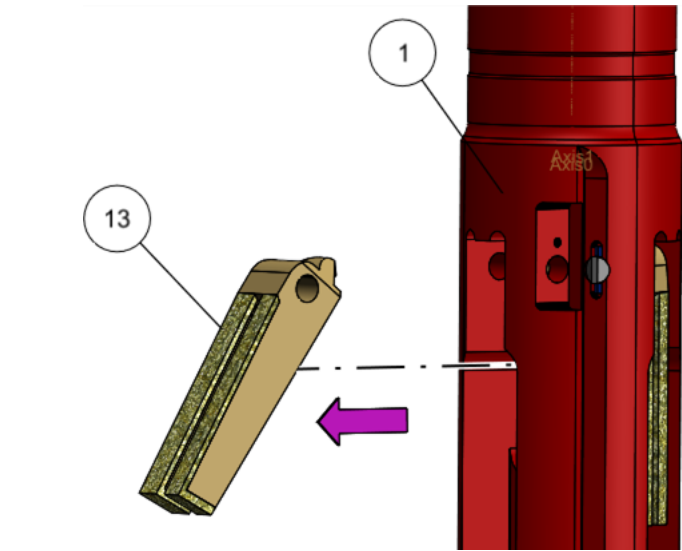


Figure 23

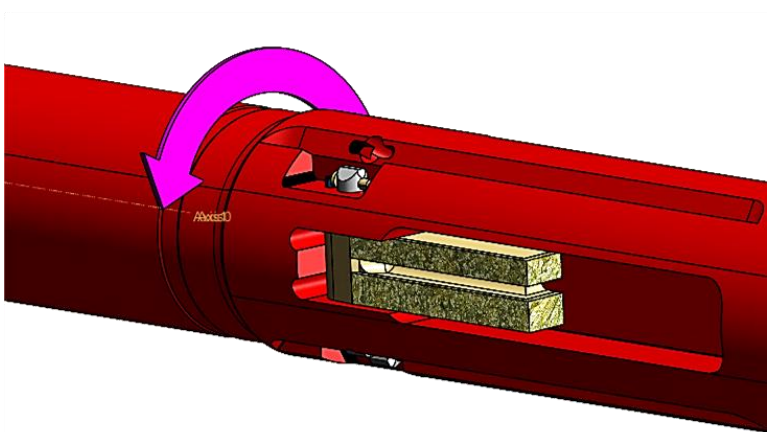


CAUTION: *LAY KNIVES ON THE WORKBENCH OR STORAGE PALLET. DO NOT DROP THEM. FOLLOW GOOD HANDLING AND LIFTING PRACTICES AS SOME KNIVES ARE HEAVY.*



NOTE: *If knives are being replaced for running back in the hole, always install each new knife in the first open slot, with the knife pin partially in place, before removing or replacing the other knives. One-by-one installation eliminates the need for prying down the knife rest bushing to slip in the knife heel between it and the piston.*

8. Proceed counter clockwise around the tool to remove all knives (13).



	25 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

Figure 24

9. Remove the Indicator Assembly (9)

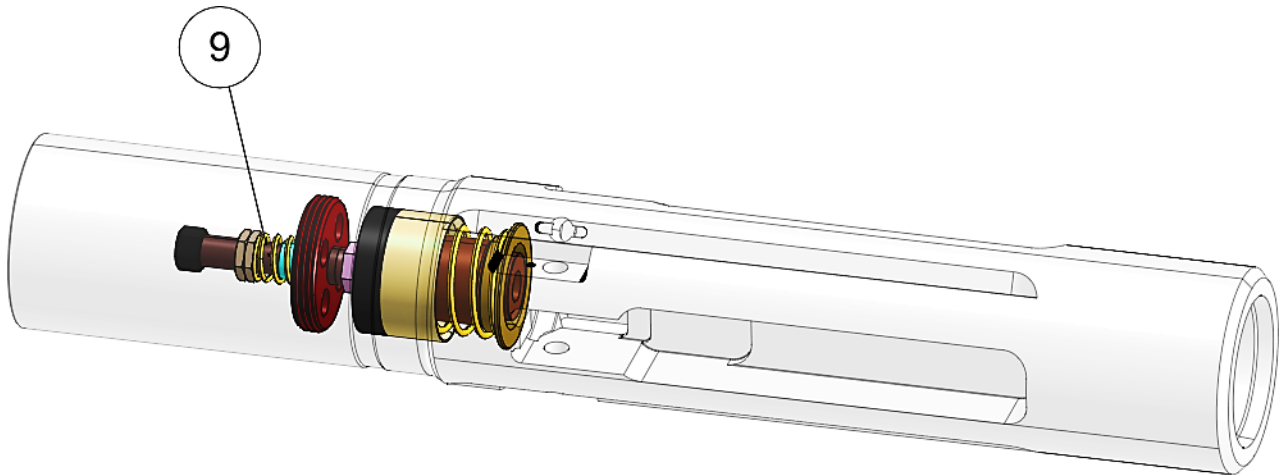


Figure 25- Indicator Assembly in Cutter Body (Shown Transparent)

- 9a. After all knives (13) and the top sub (8) are removed, loosen the indicator assembly (9) with the indicator wrench by engaging the slots in the indicator spider (9g) and rotating counter clockwise.

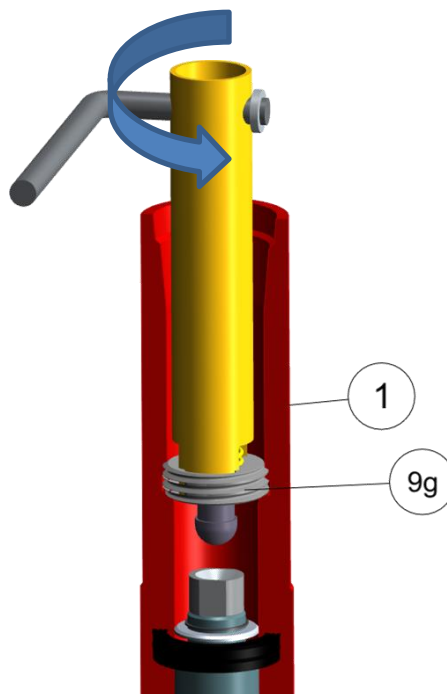


Figure 26 – Indicator Wrench

	26 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

- 9b. **Remove the indicator assembly (9) and set aside.**

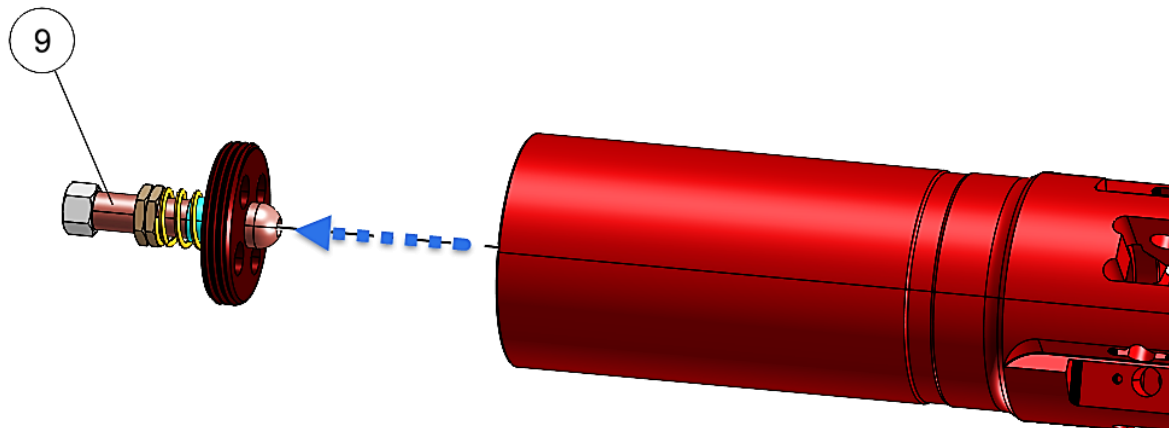


Figure 27

10. **Remove the Piston assembly**

Lay the tool horizontally on the floor. With a bar small enough to pass through from the bottom, push out the knife rest bushing (2) and the piston (10) through the top opening.

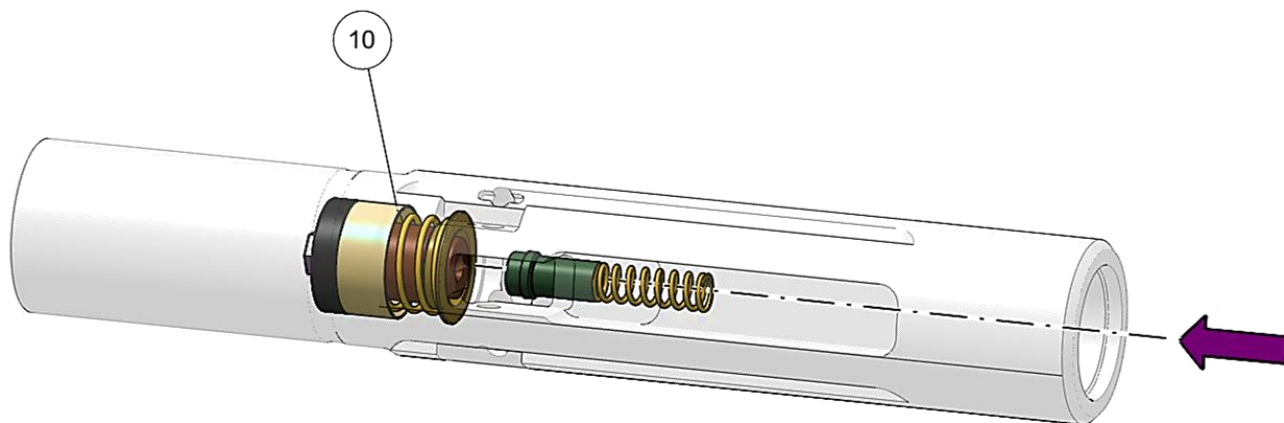


Figure 28 – Piston Assembly shown in transparent body.



NOTE: *If the piston is too tight to push out with a bar, use a piston pulling tool.*

	27 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

11. Remove the knife rest bushing (2).

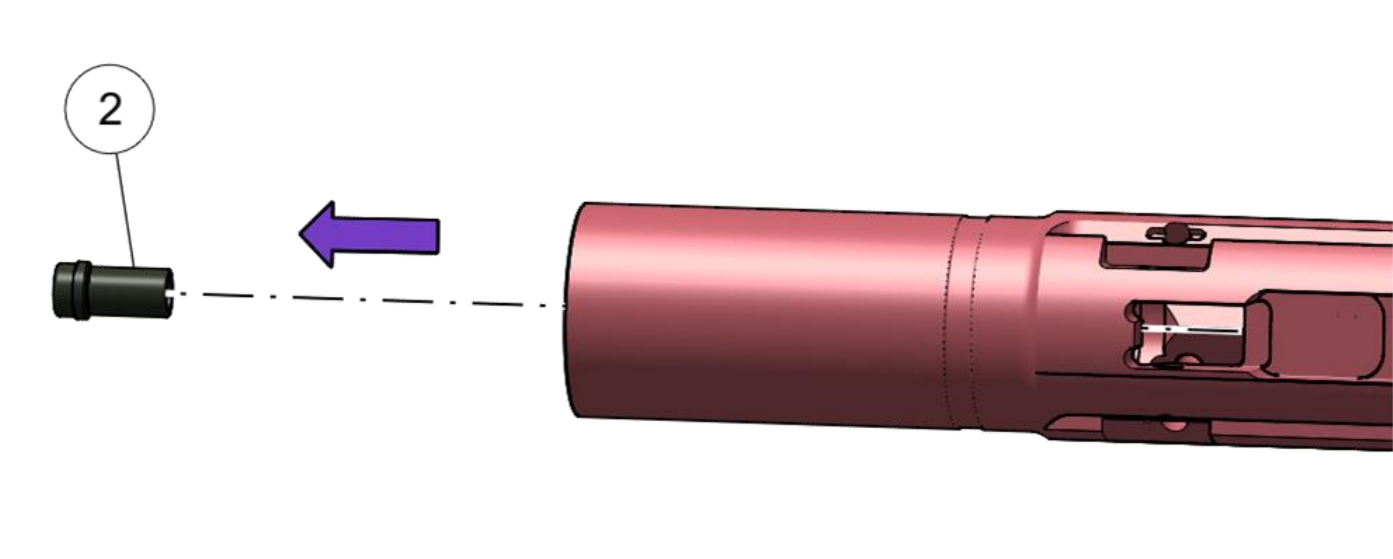


Figure 29

12. Use a heavy wire or a small rod with a hook on the end to remove the knife spring (3).

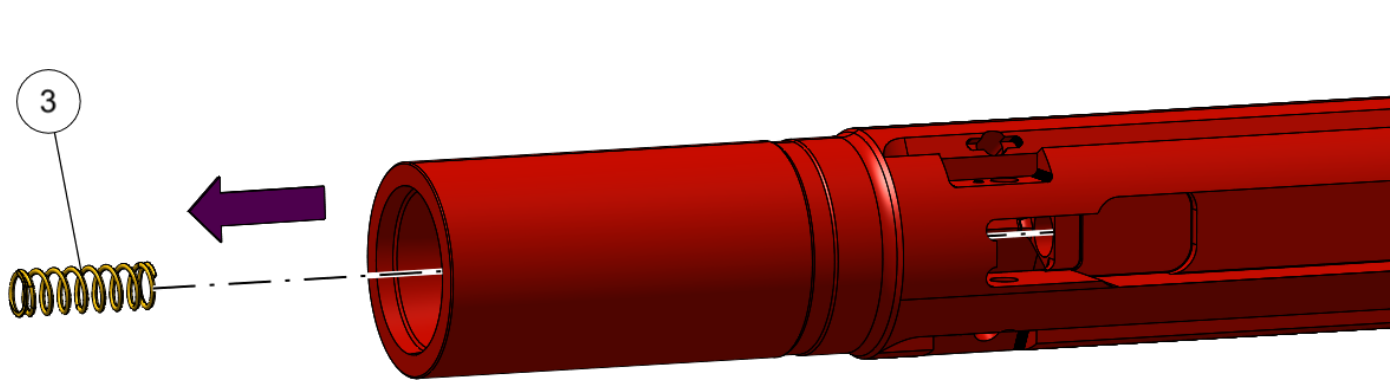


Figure 30

	28 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

13. Remove the stabilizer pads.



Note: This step only applies to 5.50" OD cutters and smaller that are equipped with stabilizer pads.

13a. Unscrew the two socket head cap screws (7) from cutter body (1) and remove stabilizer pad (11).

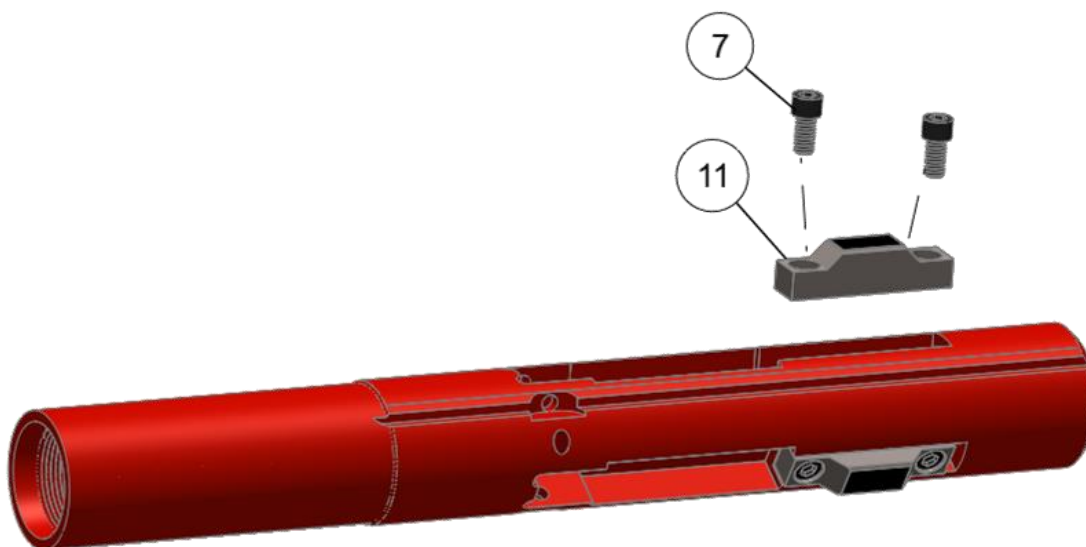


Figure 31

13b. Repeat previous step to remove remaining stabilizer pads (11).

14. Prepare for Inspection

- Rinse the tool, inside and out, and all internal parts with fresh water, if available. If fresh water is not available, use kerosene or diesel fuel.
- If rust is present, wire brush the piston bore in the body (1) and the narrow portion of knife slots.

End of Disassembly Procedure.

	29 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

3.7 Indicator Subassembly

3.1.1 Introduction

This section describes the process of disassembling the indicator subassembly in preparation for inspection while performing maintenance or service of the tool.

3.7.1 Equipment Required

- Wrench for Jam Nuts
- Wrench for Retainer Cap
- New O-ring
- PPE
- Workbench

3.7.2 Indicator Components Diagram

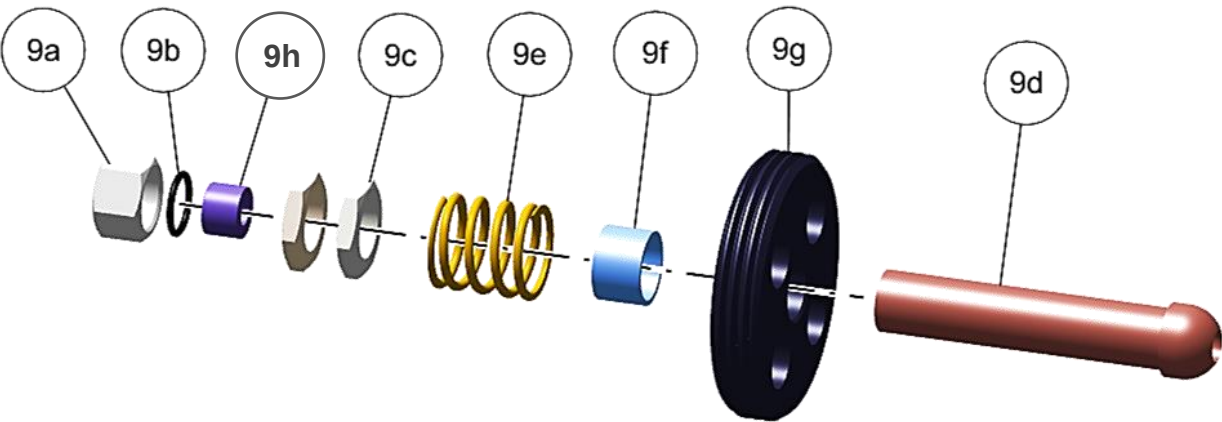


Figure 32 - Indicator Components

Indicator Components	
Item #	Description
9a.	Retainer Cap
9b.	O-ring
9c.	Hex Jam Nut
9d.	Stem
9e.	Compression Spring
9f.	Sleeve
9g.	Spider
9h.	Orifice (Nozzle)

	30 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

3.7.3 Disassemble the Indicator

1. Set indicator assembly (9) on a table or workbench.
2. Use a wrench to remove the Nozzle Retainer Cap (9a).

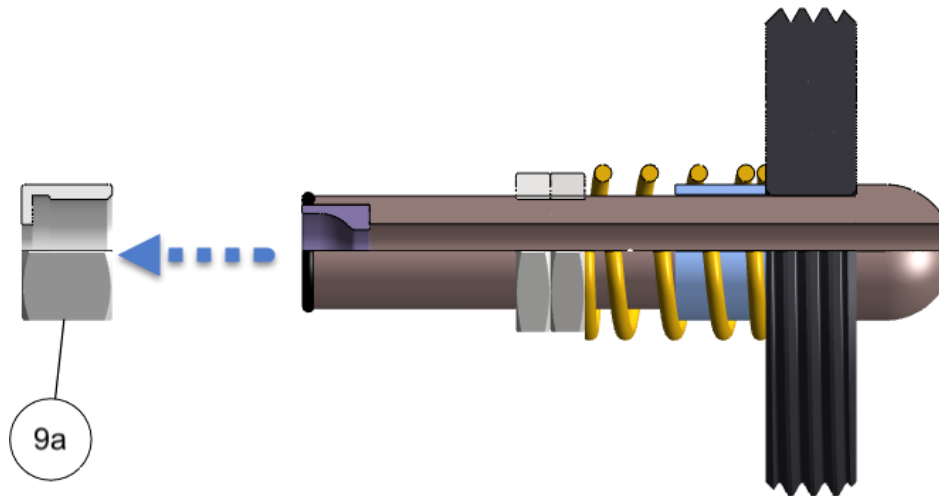


Figure 33

3. Remove O-ring (9b) and discard. If re-assembling for a job replace with new O-ring (9b).

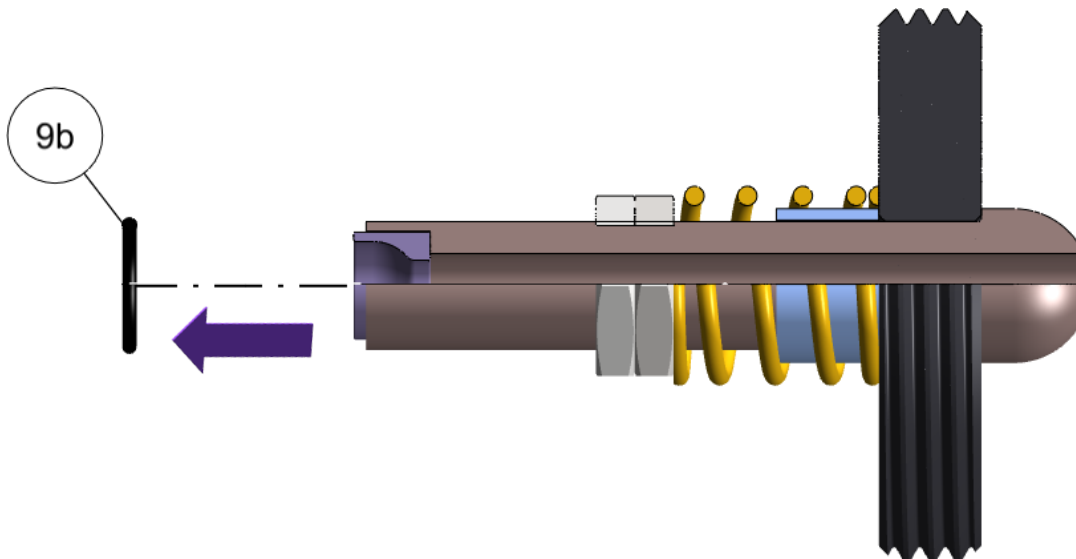


Figure 34

	31 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

4. Remove nozzle (9h) and set aside.

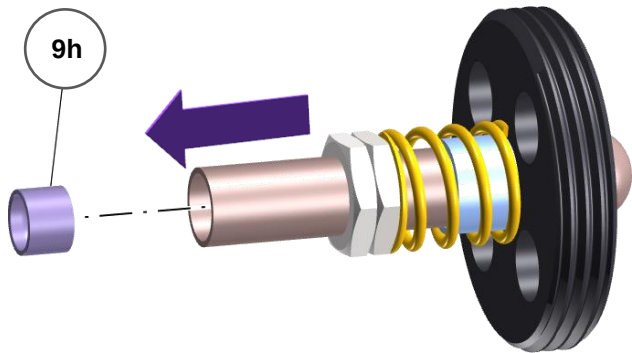


Figure 35

5. Remove the two jam nuts (9c) and set aside.

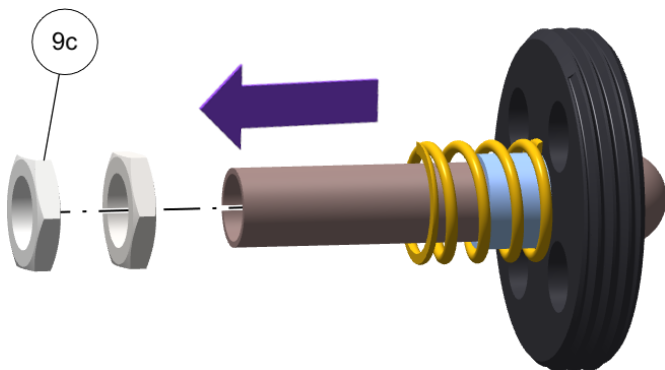


Figure 36

6. Slide the indicator spring (9e) and indicator sleeve (9f) off the indicator stem (9d).

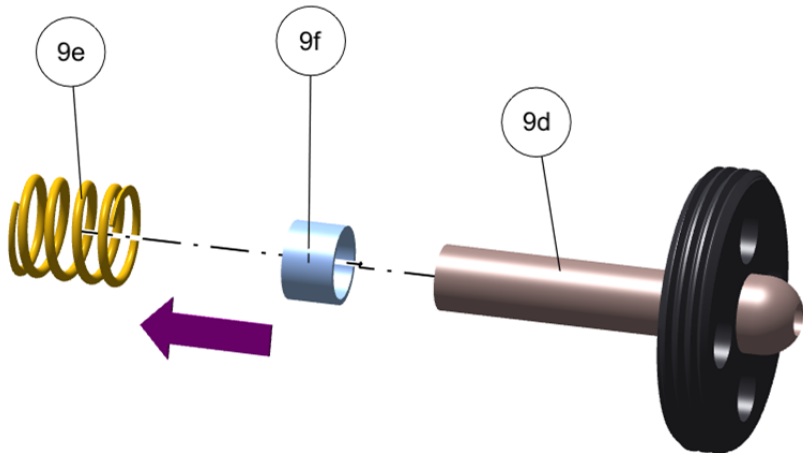


Figure 37

	32 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

7. Remove the spider (9g) from the indicator stem (9d).

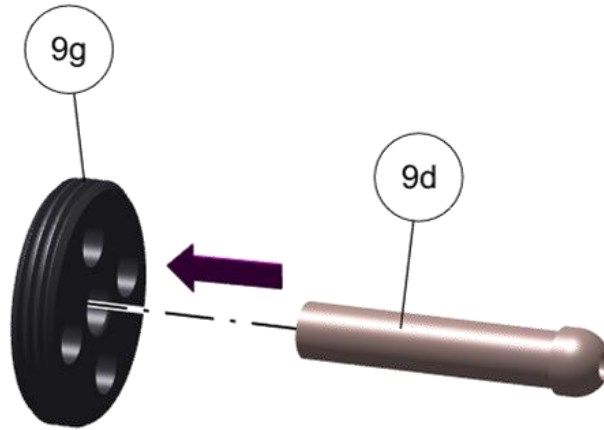


Figure 38

8. Clean inspect all parts. Refer to [4.2 Inspection of Individual Components](#).



NOTE: When reassembling the Indicator Assembly refer to customer requirements as to what size of orifice is to be fitted in the retainer cap.

End of Indicator Disassembly Procedure.

	33 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

3.8 Piston Subassembly

3.8.1 Introduction

This section describes the process of disassembling the piston assembly in preparation for inspection while performing maintenance or service of the tool.

3.8.2 General Information

There are several configurations of the Piston assemblies found in A-1 Casing Cutters. The disassembly procedure will vary slightly depending on which size tool size.

3.8.3 Equipment Required

- Bench vise
- Wrench
- Hex bit socket or Allen key set
- Long Flat Head Screwdriver
- Long Needle Nose Pliers
- PPE

	34 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

3.8.4 Piston Assembly Diagram

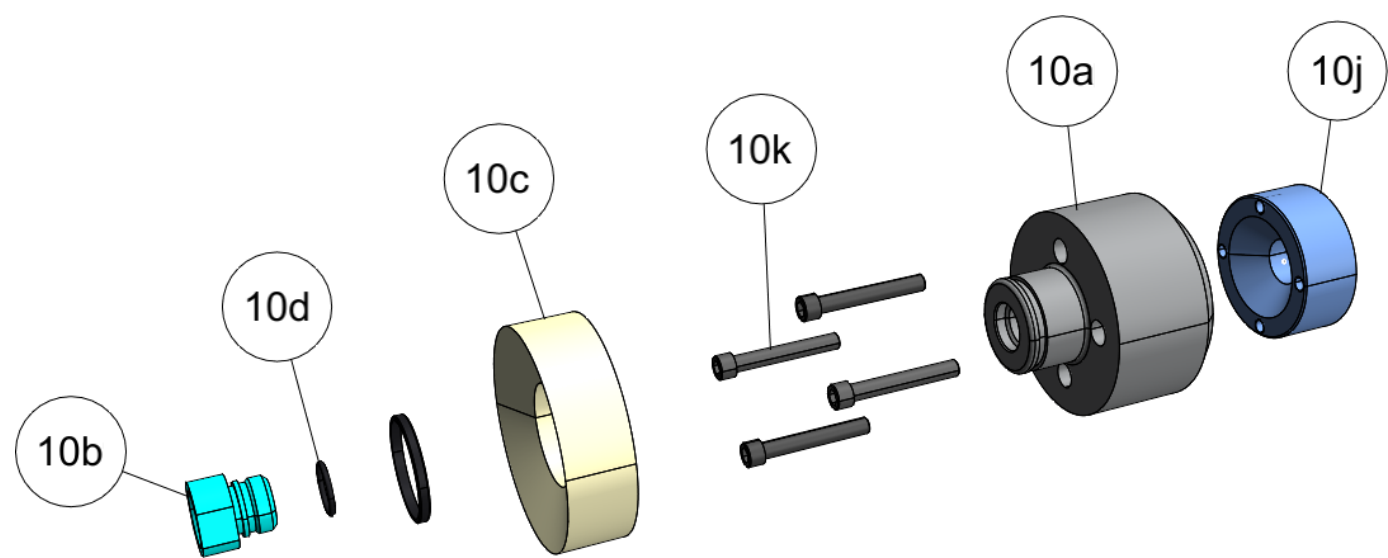


Figure 39 – 12.0” OD Casing Cutter Piston Assembly

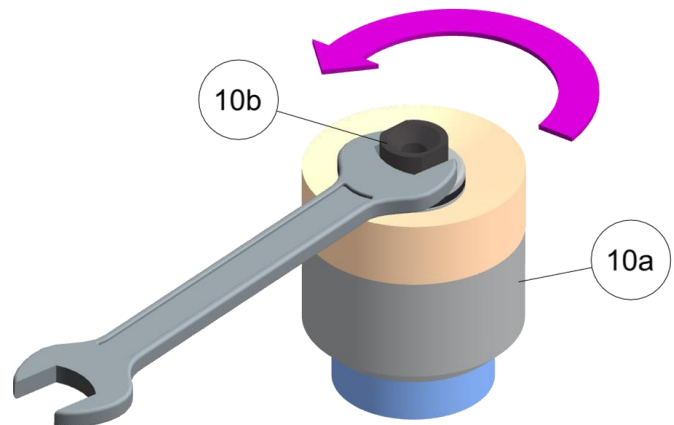
Piston Components	
Item #	Description
10a.	Piston Body
10b.	Indicator Bushing
10c.	Piston Seal
10d.	O-ring
10g.	Compression Spring
10j.	Bottom Ring
10k.	Socket head Cap Screw

	35 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

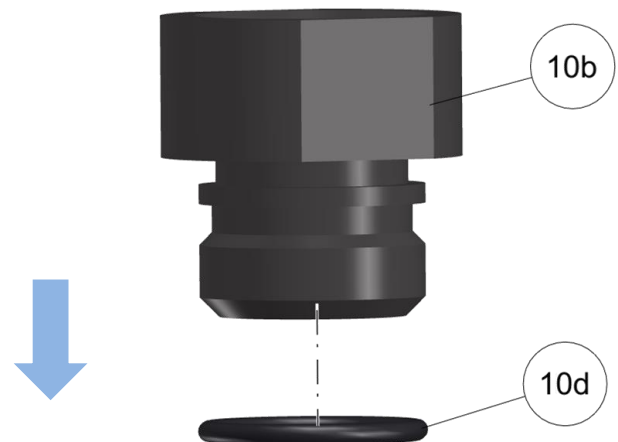
3.8.5 Disassembling the Piston

- 1 Place piston assembly (10) in bench vise. Secure using soft jaws to prevent damage to the piston OD.

- 2 Use a wrench to remove the indicator bushing (10b) from the piston (10a)



- 3 Remove the O-ring (10d) from the indicator bushing (10b) and discard O-ring.



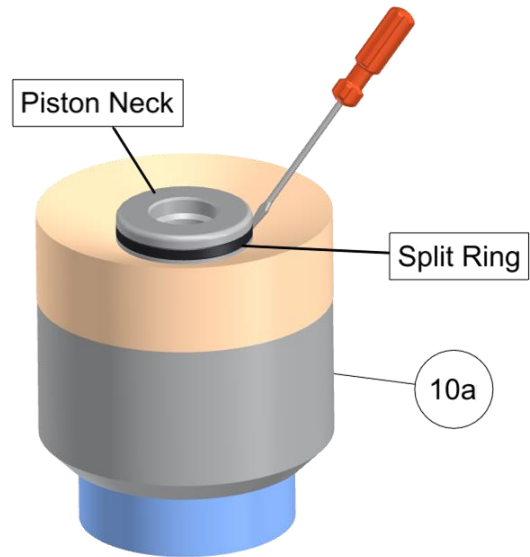
	36 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

3.8.5 Disassembling the Piston

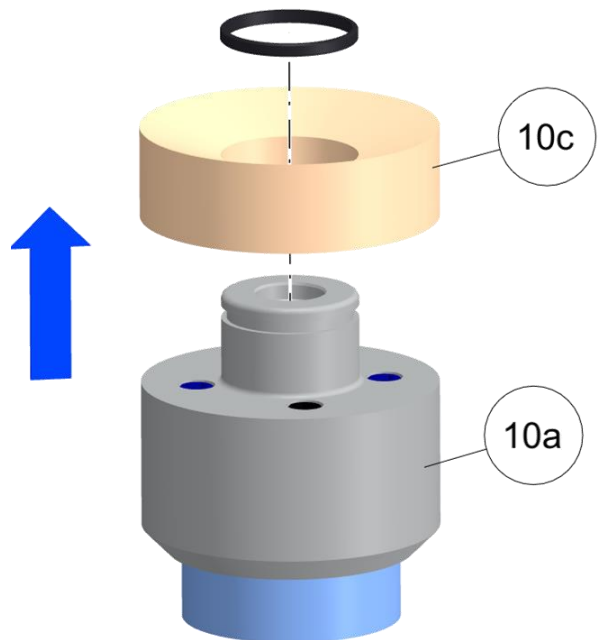
- 4 Use a large flathead screwdriver to pry the split ring from the groove in the piston neck.



CAUTION: POTENTIAL RISK OF PROJECTILE DURING REMOVAL OF SPLIT RING. ENSURE ALL SAFETY PRECAUTIONS ARE FOLLOWED.



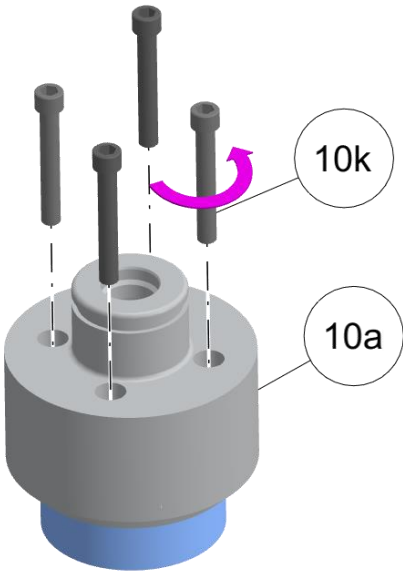
- 5 Remove the split ring and slide the piston seal (10c) off the piston (10a).



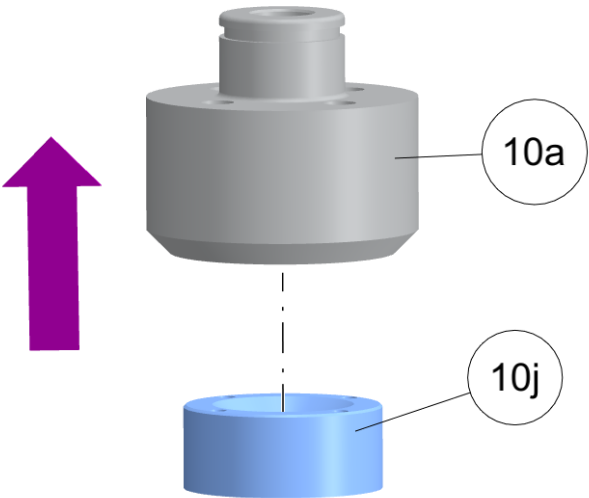
	37 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

3.8.5 Disassembling the Piston

- 6
- Use an Allen key or hex socket bit to remove the four socket head cap screws (10k) from the piston (10a).



- 7
- Separate the Piston (10a) from the Bottom ring (10j)



End of Piston Disassembly Procedure.

	38 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

SECTION 4: INSPECTION

4.1 Introduction

This section of the manual identifies specific areas and critical components of the tool for inspection after returning from operation. Inspection shall be performed only by qualified QC personnel using calibrated equipment to obtain accurate measurements. Certain areas are known to experience wear or damage during operation of the tool and the inspection criteria defines the allowable limits for the tool to return to service.

4.2 Inspection of Individual Components

4.2.1 Tool Joint Connections

1. Wet Magnetic Particle Inspection per [WT-103](#).
2. Inspect for any thread damage or galling on all connections.
3. Approval from Engineering must be obtained for carrying out all repairs due to galling.
4. Check for rust and corrosion. Any corrosion of the threads is not acceptable.

4.2.2 Top Sub

1. The Top Sub must be cleaned to bare metal along the full length.
2. Wet Magnetic Particle Inspection per [WT-103](#).

4.2.3 Cutter Body

1. The Body must be cleaned down to bare metal along the full length.
2. Wet Magnetic Particle Inspection per [WT-103](#).
3. The Piston bore ID of the cutter body must be checked for abnormal wear and washout.
4. Any evidence of washout and the body ID must be repaired.

Refer to [4.3 Inspection Criteria](#) for allowable wear tolerances of critical dimensions.

	39 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	



4.2.4 Knife Pockets

1. Check for damage due to thrust from Knife arms. This will occur on the edge of the pocket below the Pin, and the leading edge of the pocket above the Pin.

Refer to [Figure 40](#).

2. Check for damage due to bent Knife arms.
3. Check the bottom of the pocket for washout and deformation, where the Knife arm heel is positioned when open.

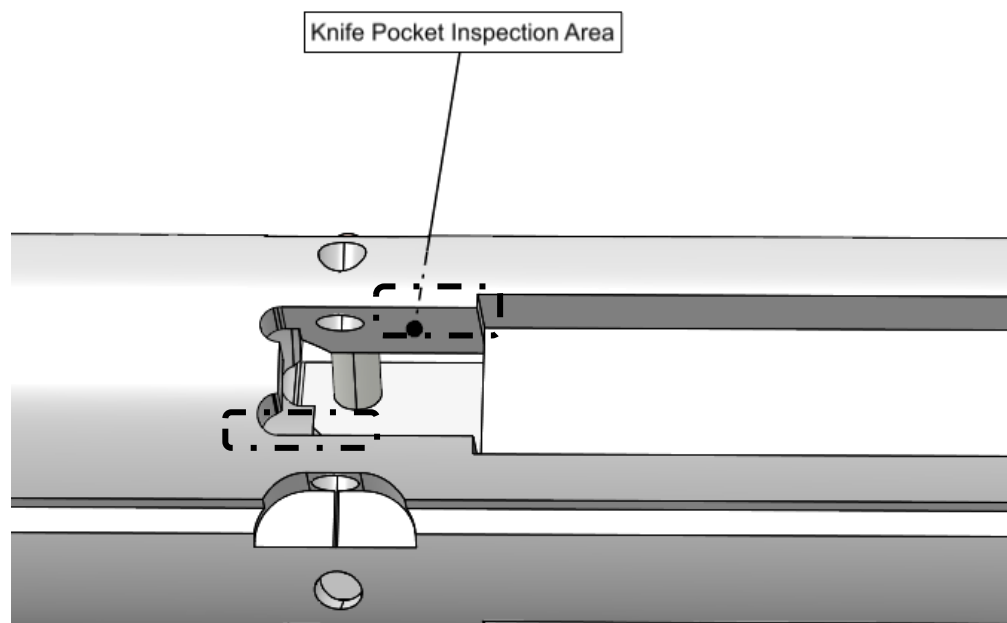


Figure 40



4.2.5 Knife Pin

1. Wet Magnetic Particle Inspection per WT-103.
2. Check for roundness and wear. No elongation is acceptable.

Refer to [4.3 Inspection Criteria](#) for allowable wear tolerances of critical dimensions.

	40 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	



4.2.6 Pin Holes – Body

1. Check for roundness and wear.
2. Check for Elongation of the hole in the radial axis, and cracks that generally go along this axis to the OD of the body. No elongation is acceptable.
3. Check for cracks on the O.D. of the tool, where the hole is started. This is on the thin section of the top side of the hole. These cracks may be removed using a burr, blending the hole start with the run out of the burr.
4. Pin holes may be reworked on some cutters.

Refer to **5.1. Casing Cutter Body: Knife Pin Holes**

4.2.7 Knives

1. Wet Magnetic Particle Inspection per **WT-103** over its full length to determine the condition and acceptability for repair.

Refer to **WT-131 Section 5.6** for crack inspection requirements.

Refer to **4.3 Inspection Criteria** allowable wear tolerances.



2. Abnormal wear of the Dressing should be cross referenced to the Job Log for Performance Evaluation.

Critical Areas:

3. Knife Heel - Check for Damage. This is repairable with welding.
4. After redress the Knife must undergo Wet Magnetic Particle Inspection per **WT-103** again.

4.2.8 Knife Rest Bushing



1. Bushing nose - Visually inspect for Damage. This is evident as a mushrooming effect. This can be repaired by weld build-up. Care must be taken to ensure the piston hardness remains within the original manufacturing specification. Visually inspect for washout. This may also be repaired by welding and re-machining.
2. Check the top surface of bushing that contacts the knife body for excessive wear. If it displays significant wear scrap the part.

	41 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

4.2.9 Piston

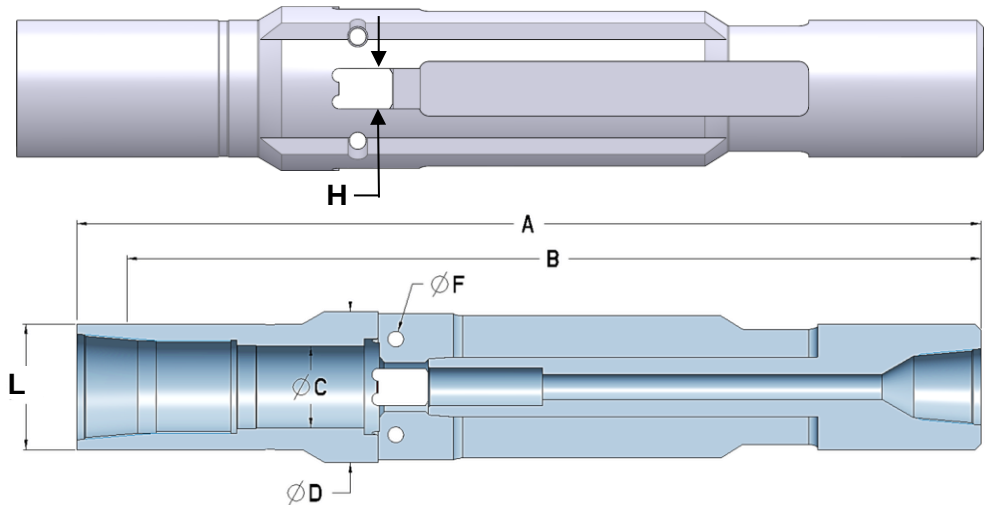
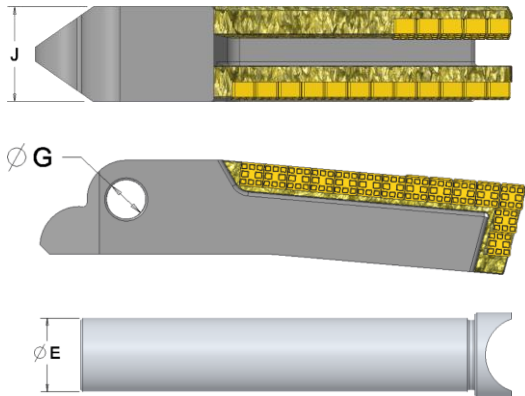
-  1. Piston Nose – Visually inspect for damage. This is evident as a mushrooming effect. This can be repaired by Weld Build-Up. Care must be taken to ensure the Piston Hardness remains within the original manufacturing specification.
-  2. Visually inspect for washout. This may also be repaired by welding and re-machining.
3. O-ring groove - Check the O-Ring groove for evidence of washout or erosion. This can be repaired with welding and re-machining.
4. Piston Spring and Knife Return Spring - Visual Inspection required for all springs. They should be checked for Set, Cracks, and Corrosion.
5. Piston Rubber (Mission Packing) - Visually inspect for damage. Rubber must be replaced if any wear or washout is observed.
6. Polypak Seals – Visually inspect for damage. Rubber must be replaced if any wear or washout is observed.
7. Spring Guide (8.25 OD tool only) - Check the I.D. of the guide for excessive wear from the Piston. Also check the Spring seating area for excessive wear and scoring.

4.2.10 Indicator Bushing

-  1. Examine for washout. If washout is present, the Indicator Bushing will be discarded.

	42 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

4.3 Inspection Criteria



Allowable Wear for Critical Dimensions

Cutter OD		3.625		4.25		5.50		7.25		8.25		9.50		12.00 M23		12.00 M24		17.00 M24	
DIM	Description	Size (in.)		Size (in.)		Size (in.)		Size (in.)		Size (in.)		Size (in.)		Size (in.)		Size (in.)		Size (in.)	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
A	Overall body length (new parts)	28.37	28.87	29.75	30.25	38.63	39.13	45.5	46.5	49.75	50.25	61.75	61.25	65.75	66.25	71.75	72.25	71.75	72.25
B	Minimum Recut body length (used)	-- ¹	28.87	-- ¹	30.25	-- ¹	39.13	42.0	46.5	-- ¹	50.25	-- ¹	61.25	-- ¹	66.25	65.43	72.25	65.43	72.25
C	Body ID: Piston area	2.000	2.010	2.250	2.260	3.000	3.030	4.010	4.050	5.020	5.050	5.020	5.050	6.020	6.050	6.520	6.540	6.520	6.540
D	Body OD	3.562	3.656	4.187	4.281	5.437	5.531	7.125	7.281	8.125	8.281	9.375	9.531	11.875	12.031	11.875	12.031	16.875	17.031
E	Knife Pin Dia.	0.435	0.438	0.495	0.499	0.620	0.624	0.808	0.811	0.996	0.999	1.121	1.124	1.247	1.250	1.247	1.249	1.247	1.249
F	Knife Pin bore hole dia. - Body	0.439	0.444	0.500	0.505	0.625	0.630	0.812	0.815	1.000	1.005	1.127	1.137	1.252	1.270	1.252	1.270	1.252	1.270
G	Knife Pin bore hole dia.- Knife	0.441	0.446	0.505	0.510	0.630	0.640	0.813	0.823	1.005	1.010 ²	1.140	1.145	1.265	1.270	1.265	1.270	1.265	1.270
H	Knife pocket width	1.255	1.260	1.255	1.260	1.500	1.505	2.000	2.005	2.445	2.450	2.943	2.948	2.945	2.960	2.945	2.960	2.945	2.960
J	Knife width	1.240	1.250	1.240	1.250	1.493	1.498	1.985	1.990	2.440	2.445	2.935	2.940	2.935	2.940	2.935	2.940	2.935	2.940
L	Fishneck/Top Box OD	Per API RP-7G																	

- Notes:
1. [Contact Engineering for review of minimum recut length as needed.](#)
 2. [Knife Pin hole diameters are acceptable up to 1.025" for carbide dressed knives and non-latest revisions of insert dressed knives.](#)
[Contact Engineering for concession of dimensions that do not meet this criteria.](#)

	43 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

SECTION 5: REPAIR

5.1 Casing Cutter Body: Knife Pin Holes

5.1.1 Introduction

Heavy use of a tool may result in excess wear or elongation of the knife pin holes in the cutter body. The following instructions describe the procedure for reworking pin holes that did not meet inspection criteria and need to be repaired in order to return to service.

5.1.2 Equipment Required

- Vise
- Rubber mallet or plastic hammer
- Stainless steel sleeves
- Loctite or Bakerlok thread locking compound
- PPE

5.1.3 Pin Hole Rework Specifications

Rework Chart - Cutter Body Pin Holes

Body OD	Body PN	Sleeve Front PN	Sleeve Back PN	Sleeve OD	Sleeve ID	Sleeve Front Length	Sleeve Back Length	Sleeve QTY Each	Pin Hole ID. Min/Max	Pin Hole Offset
8.25	00114063	02896313	02896314	1.098/1.099	1.002/1.004	1.28	1.12	3	1.100/ 1.102	2.370/2.380
12.0 M23	00114066	02896317	02896317	1.373/1.374	1.253/1.255	1.96	1.96	3	1.375/ 1.377	4.049/4.059
12.0 M24	00109129	02896315	02896316	1.373/1.374	1.253/1.255	1.46	1.55	4	1.375/ 1.377	3.795/3.815

	44 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

5.1.4 Rework Instructions

1. Ream Pin holes in cutter body to dimension from [5.2 Pin Rework Specifications](#)

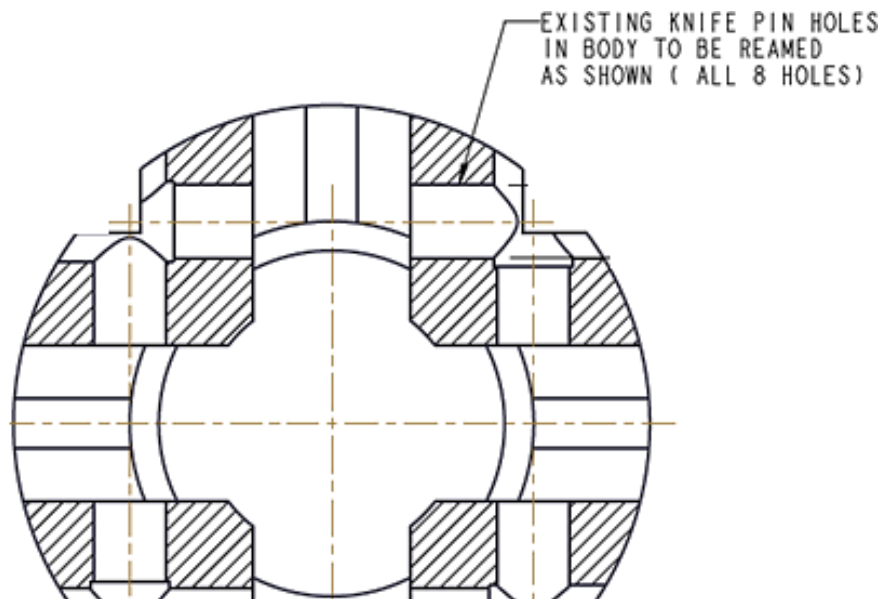


Figure 41

2. Manufacture stainless steel sleeves for the size cutter body being reworked.

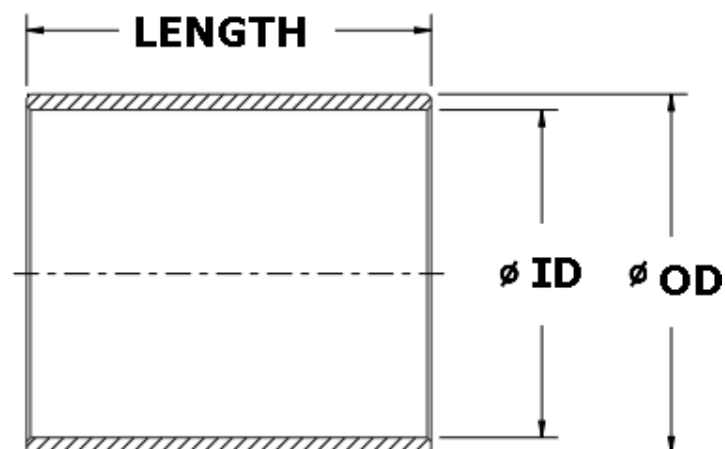


Figure 42

	46 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

5.2 Knife Rest Bushing

5.2.1 Introduction

The following instructions describe the procedure for reworking the casing cutter knife rest bushing in response to Product Alert PA802-07-16. Heavy wear on the knife rest bushing bore hole of the body can become warped or elongated, preventing the knives from reaching maximum sweep. In order to allow the knives to fully extend, this rework modification retains the knife rest bushing with the addition of grub screws to secure it inside the body. With this modification, the knife return spring is omitted from the assembly when used on a job.

5.2.2 Equipment Required

- Cutter body modified with 3/8"-16 UNC tapped holes
- Allen Key
- 3/8-16 UNC x 1.0" Grub Screws
- PPE

NOTE: *Performing this modification eliminates travel of the knife rest bushing and removes the spring. Knives may have issues returning to their resting position inside the pockets without these components functioning.*

	47 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

5.2.3 Knife Rest Bushing Rework Drawing: 12.0 M23 & M24 Casing Cutter

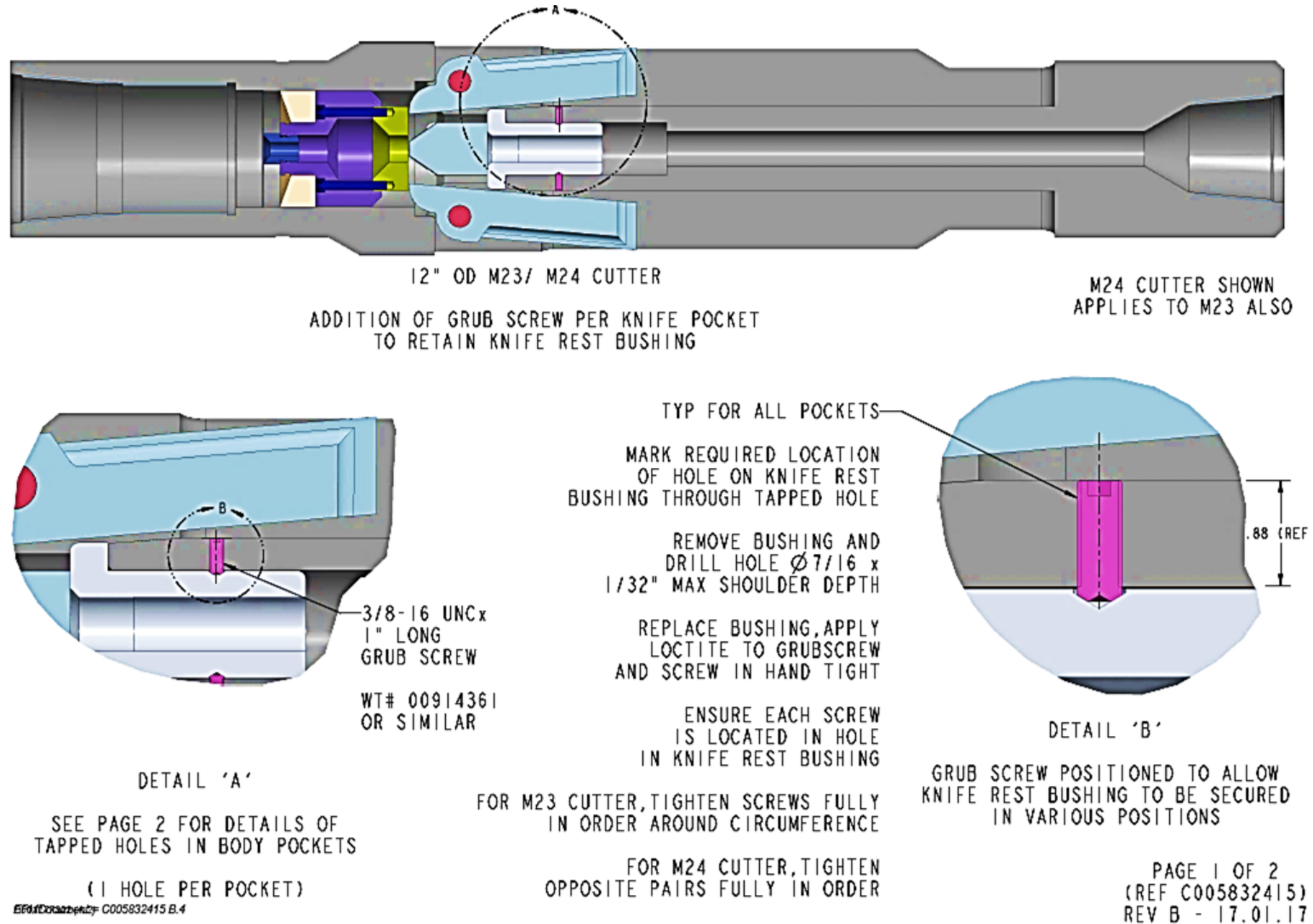
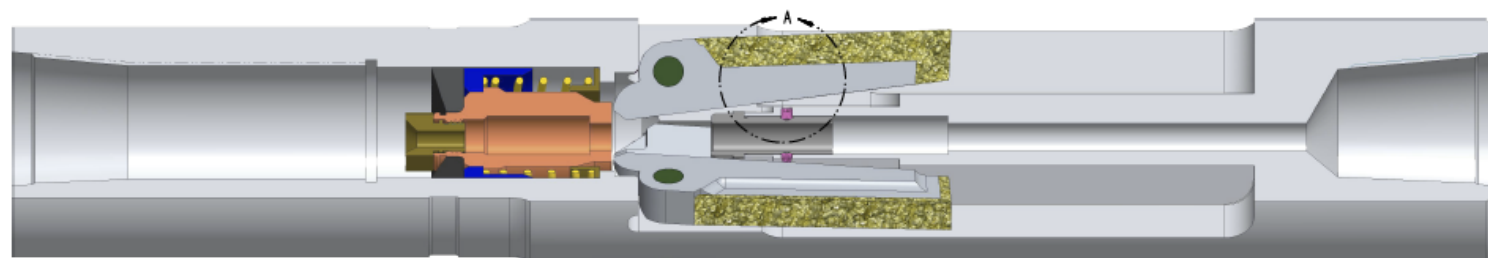


Figure 44

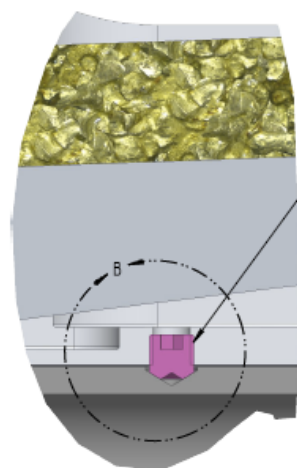
	48 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

5.2.4 Knife Rest Bushing Rework Drawing: 8.25" OD M23 Casing Cutter



8-1/4" OD M23 CUTTER

ADDITION OF GRUB SCREW PER KNIFE POCKET
TO RETAIN KNIFE REST BUSHING



DETAIL 'A'

SEE PAGE 2 FOR DETAILS OF
TAPPED HOLES IN BODY POCKETS

(1 HOLE PER POCKET)

3/8-16 UNC x
3/8 LONG
GRUB SCREW
WT# 01010989
OR SIMILAR.

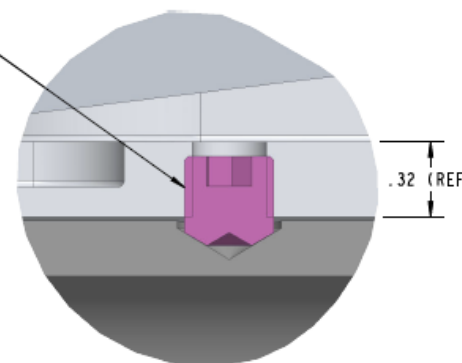
TYP FOR ALL POCKETS.
MARK REQUIRED LOCATION
OF HOLE ON KNIFE REST
BUSHING THROUGH TAPPED HOLE

REMOVE BUSHING AND
DRILL $\varnothing 7/16$ HOLE x
1/32" MAX SHOULDER DEPTH

REPLACE BUSHING, APPLY
LOCTITE TO GRUBSCREW
AND SCREW IN HAND TIGHT

ENSURE EACH SCREW IS
LOCATED IN HOLE
IN KNIFE REST BUSHING

TIGHTEN ALL SCREWS FULLY
IN ORDER AROUND CIRCUMFERENCE



DETAIL 'B'

GRUB SCREW POSITIONED TO ALLOW
KNIFE REST BUSHING TO BE
SECURED IN VARIOUS POSITIONS

Figure 45

	49 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

5.3 Knife Retaining Shear Screws



5.3.1 Introduction

These rework instructions describe the procedure for modifying the casing cutter body and knives to secure the knives within the body when running in hole. This method uses brass screws that shear at a low pressure prior to cutting and is preferred over using wire or tape. This modification will be implemented as a standard feature

5.3.2 Equipment Required

- Cutter body modified with 3/8"-16 UNC tapped holes
- Allen Key
- 3/8-16 UNC x 1.0" Grub Screws

5.3.2.3 This rework procedure is available for the following tool sizes:

- 8.25" OD M23 Casing Cutter
- 12.0" M23 & M24 Casing Cutter

	50 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

5.3.3 Knife Retaining Shear Screw Rework Drawing: 8.25 OD, 12.0 OD M23 & M24 Casing Cutter

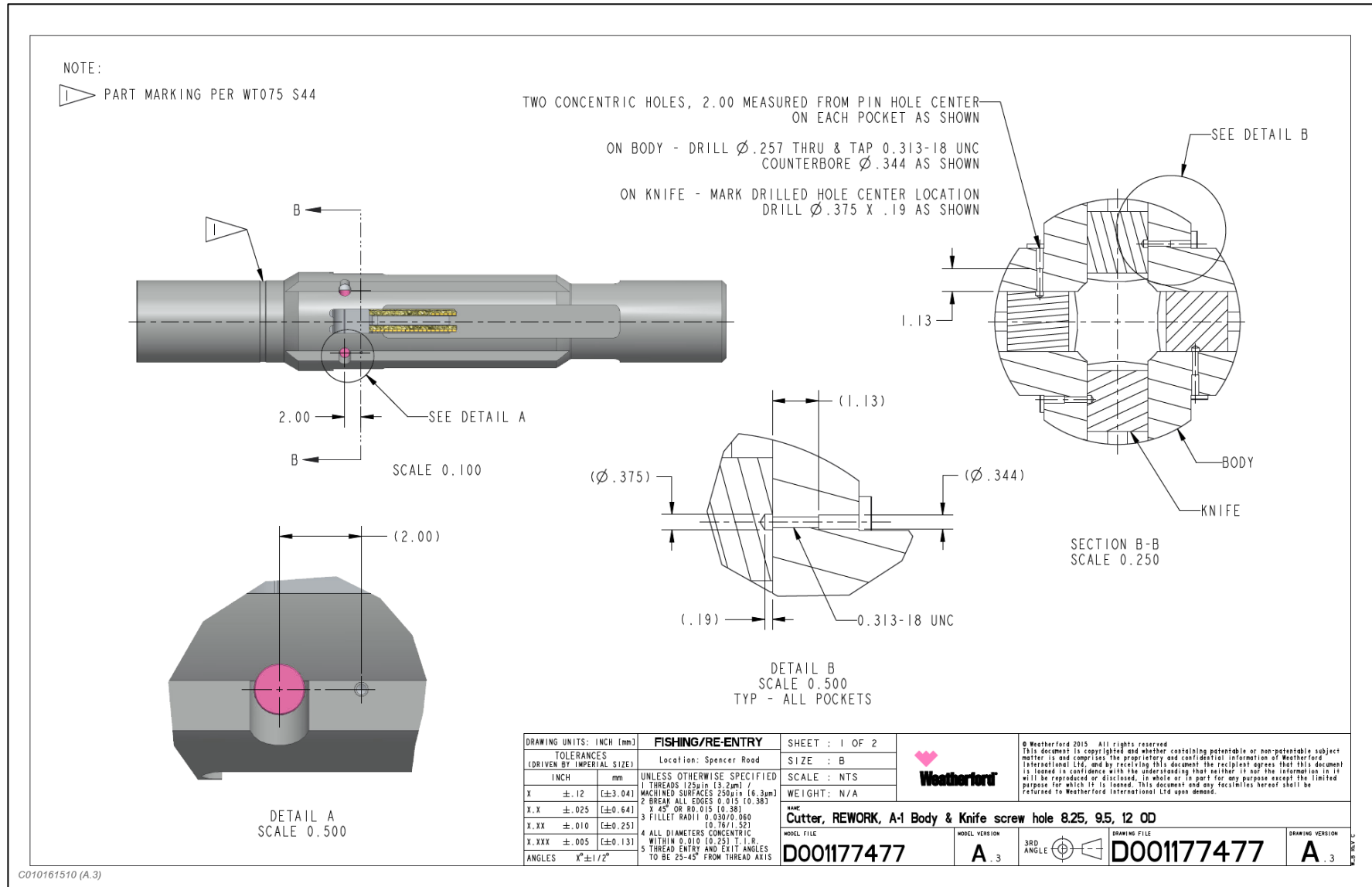


Figure 46

	51 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

Knife Retaining Shear Screw Rework Drawing: 8.25 OD, 12.0 OD M23 & M24 Casing Cutter (cont.)

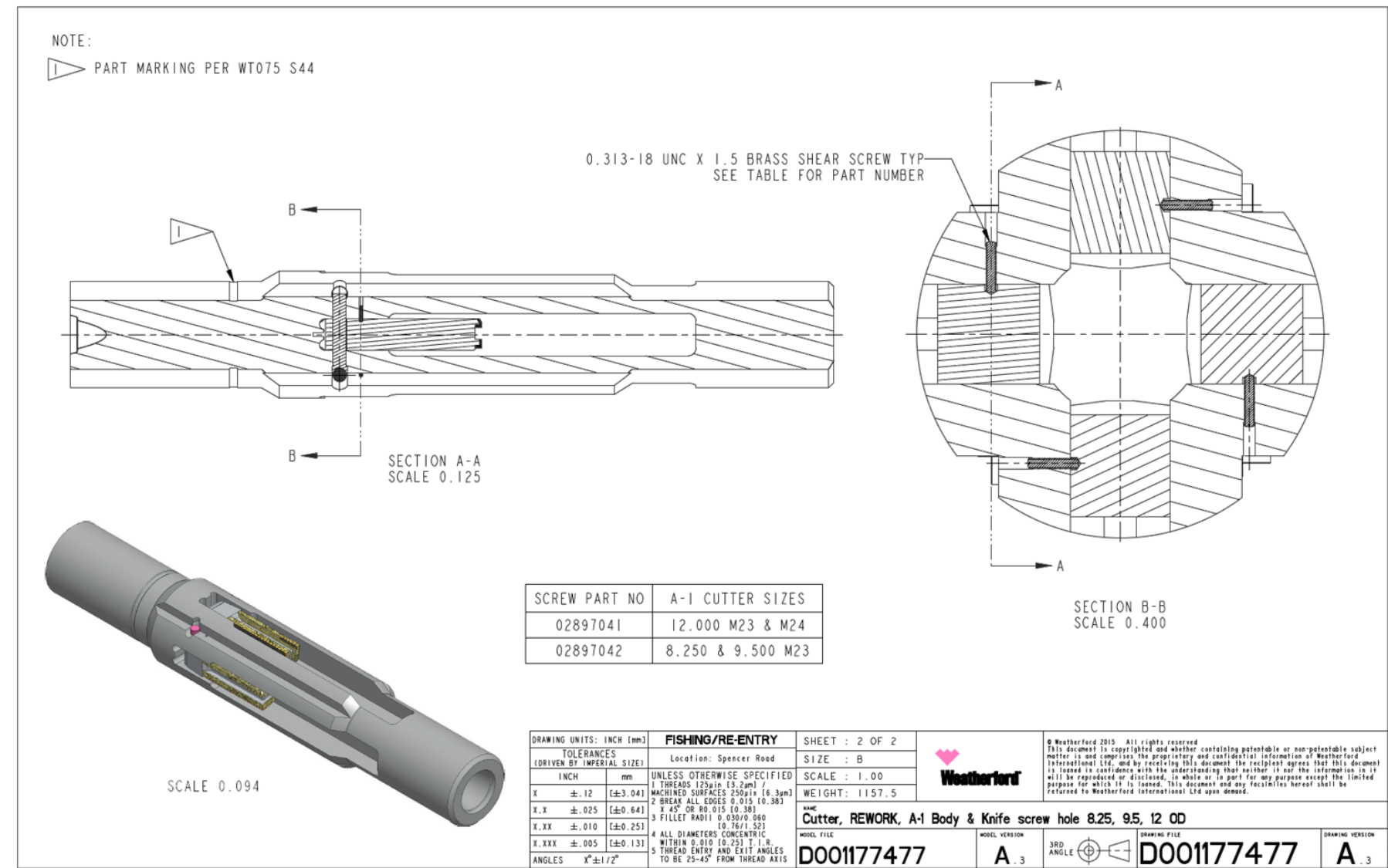


Figure 47

	52 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

SECTION 6: ASSEMBLY

6.1 Introduction

- 6.1.1 This section provides instructions for assembling the indicator, piston, base assembly, and knives of the A-1 Casing Cutter during new manufacturing, in preparation for storing in inventory, or prior to inspection during maintenance or service of the tool.
- 6.1.2 These procedures are intended to be performed in a workshop environment by those personnel who have completed the proper training and competency requirements for Fishing tools.

6.2 General Information

- 6.2.1 Use anti-galling compound on all threads and Jet-Lube NCS-30, ZN-50, ZN-60 or equivalent on all connections.
- 6.2.2 Use Jet-Lube NCS-30, Liquid O-ring 104 EU or equivalent on all keys, pins, O-rings and seals
- 6.2.3 Heavily grease all internal parts
- 6.2.4 Avoid damage to parts by using a soft jaw vise and strap wrenches to tighten connections.

6.3 Equipment Required

- Vertical vise or chain vise
- Jack stand
- Hex Bit Socket set
- Punch or small bar
- Heavy wire or small rod with hook
- Wire/Duct Tape
- Wrench Set for Jam Nuts
- Torque Wrench
- Jet-Lube® NCS-30™, BG Grease, or other approved lubricant
- PPE
- Rags

6.3.1 Special Tools

- Indicator Wrench

	53 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter				OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse

6.4 Assembling the Indicator

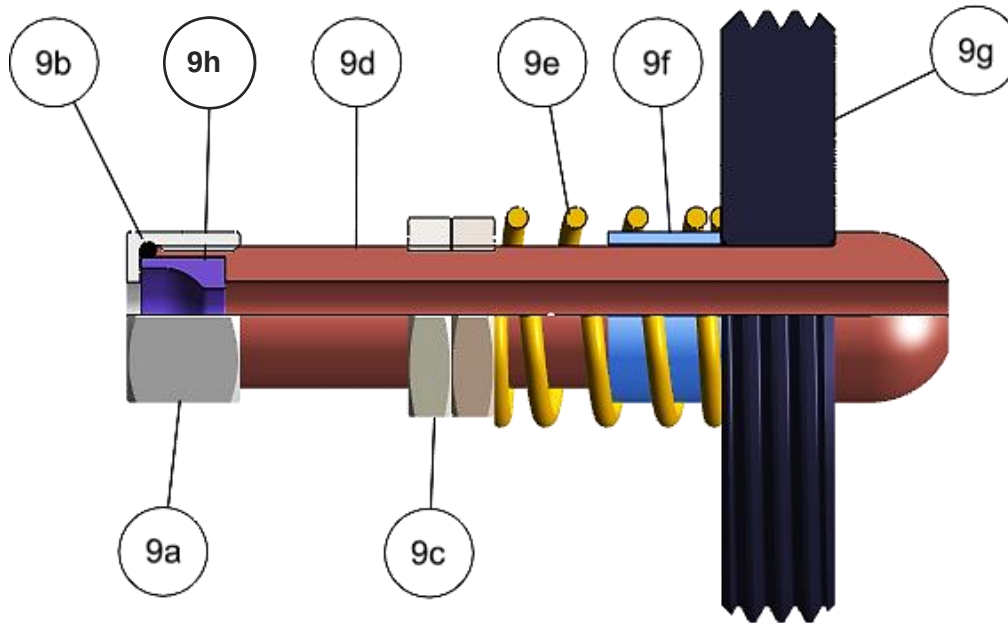


Figure 48 – Indicator Assembly

Item	Description
9a	Nozzle Retainer Cap
9b	O-ring
9c	Jam Nuts
9d	Indicator Stem
9e	Compression Spring
9f	Indicator Sleeve
9g	Spider
9h	Nozzle

	54 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

1. Apply grease to the OD of the Indicator stem (9d) and slide the Spider (9g) on to the indicator stem (9d).

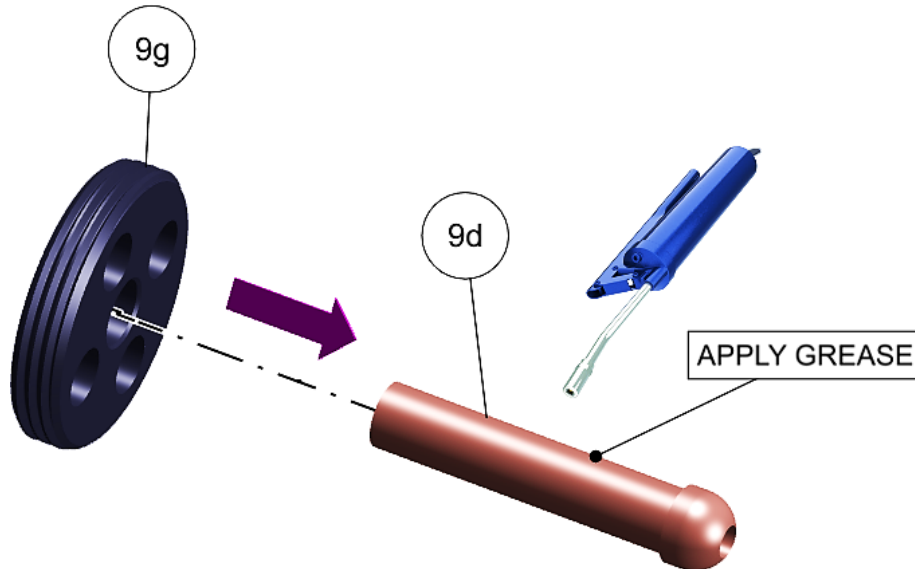


Figure 49

2. Grease the OD and ID of the sleeve (9f) and push on to the Indicator stem until it shoulders on the spider (9g).

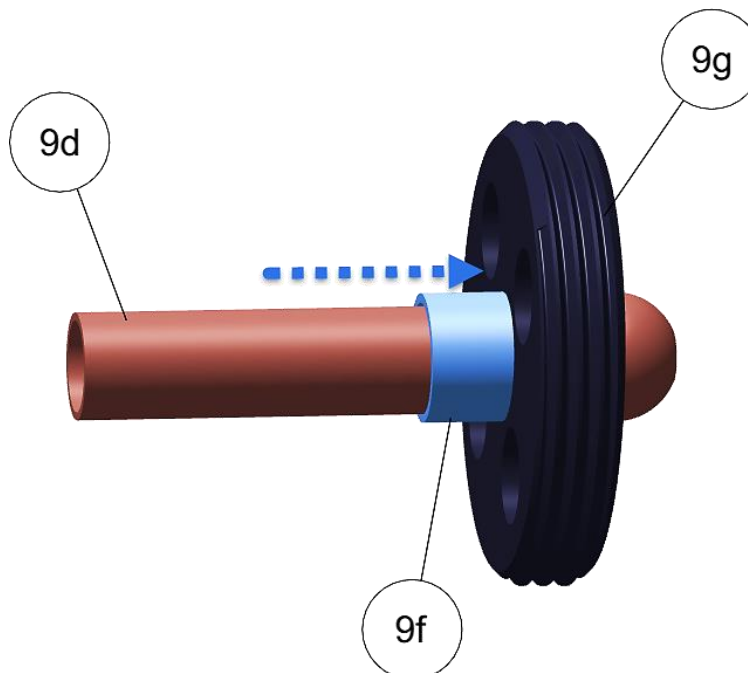


Figure 50

	55 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter				
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse

3. Grease the compression spring (9e) thoroughly. Slide the compression spring (9e) down the indicator stem (9d) and over the sleeve until the flat end of the spring contacts the spider (9g).

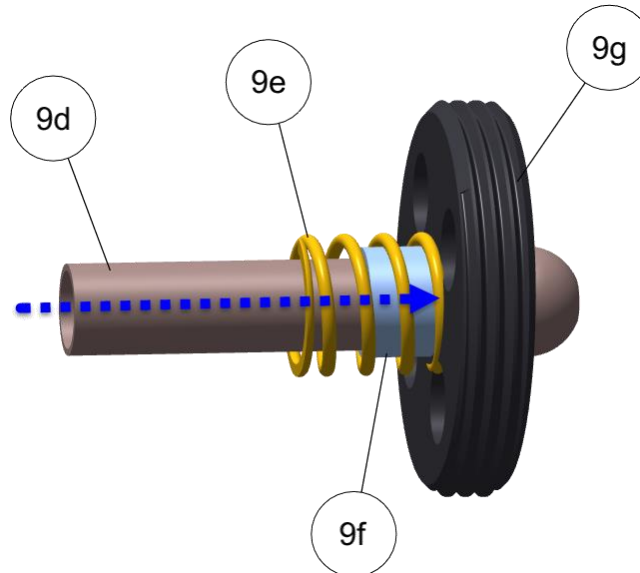


Figure 51

4. Use a wrench to thread the jam nuts (9c) onto the indicator stem (9d) until they begin to compress the spring (9e).

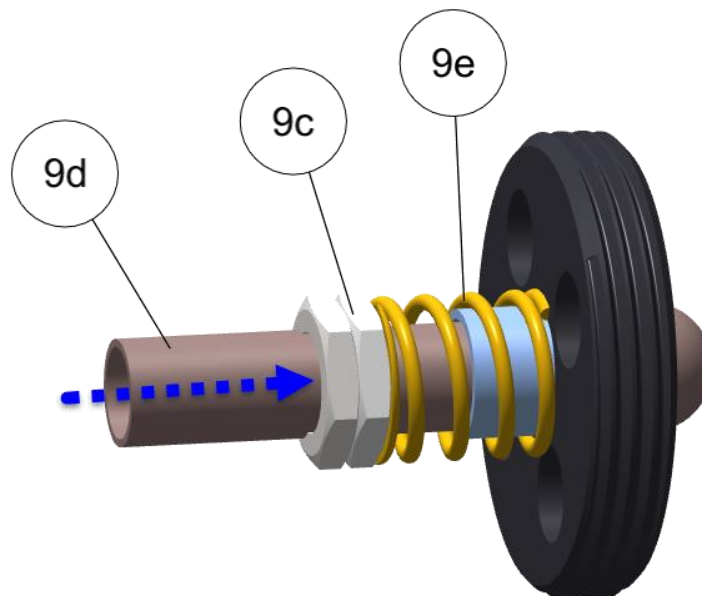


Figure 52



Note: If the casing cutter is being dressed to send on a job, refer to **6.8 Setting the Indicator**. For new manufacturing, setting the indicator is not required.

	56 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

5. Install nozzle (9h) into top of indicator stem (9d). Ensure that the nozzle (9h) is oriented with the concave side facing the upwards and the small ID facing the indicator stem (9d).

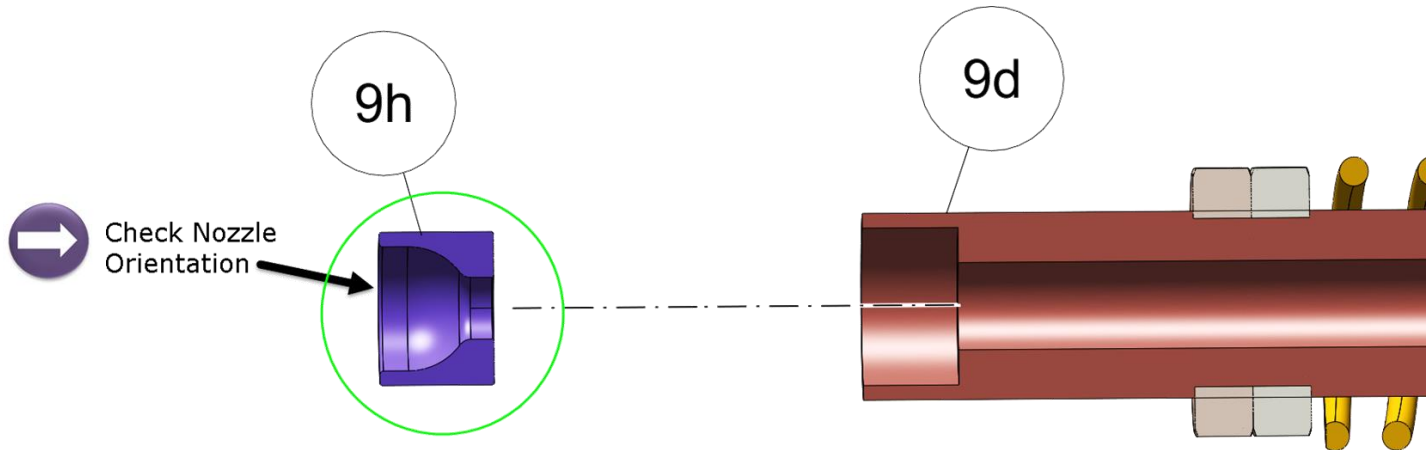


Figure 53

6. Apply downhole grease to a new O-ring (9b) and insert it into the groove inside the retainer cap (9a).

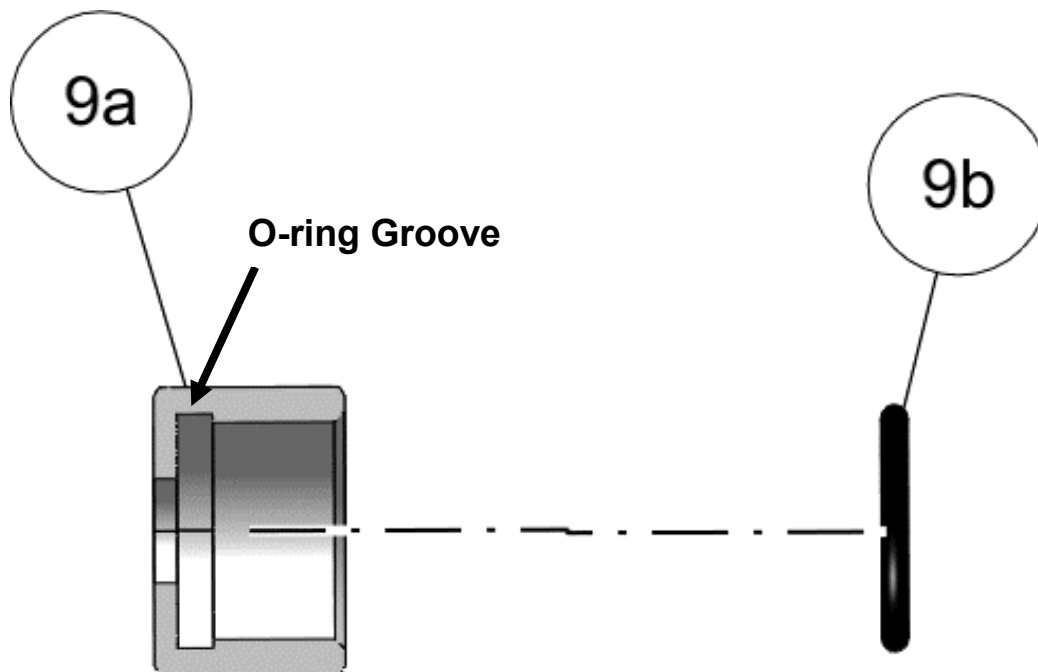


Figure 54

	57 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter				OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse

7. Apply anti-galling compound to the threads of the retainer cap (9a). Use a wrench to thread the retainer cap (9a) on to the indicator stem (9b).

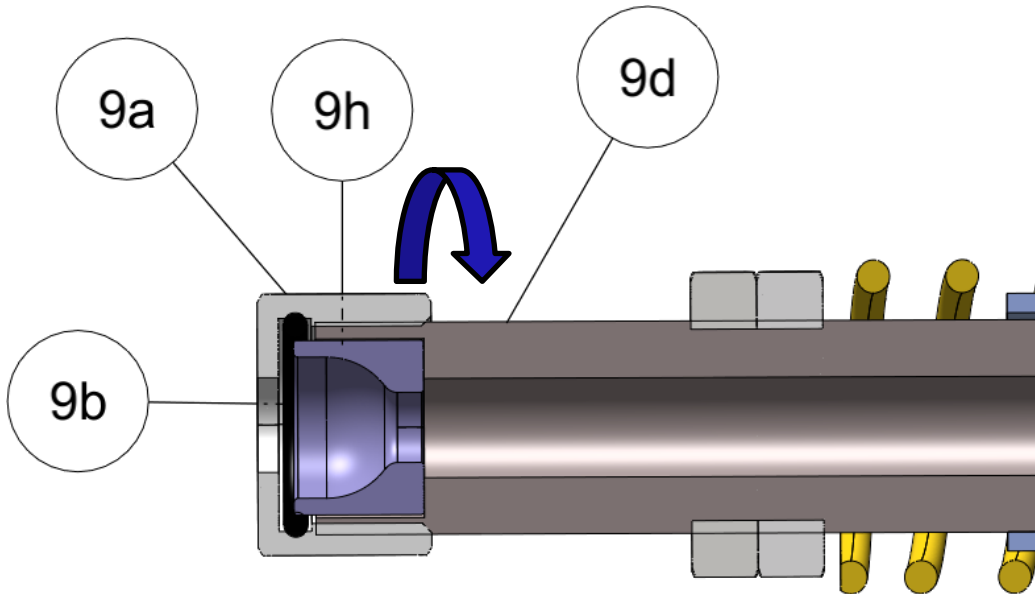


Figure 55

End of Indicator Assembly Procedure.

	58 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

6.5 Assembling the Piston

6.5.1 8.25" OD Piston Assembly Component Diagram

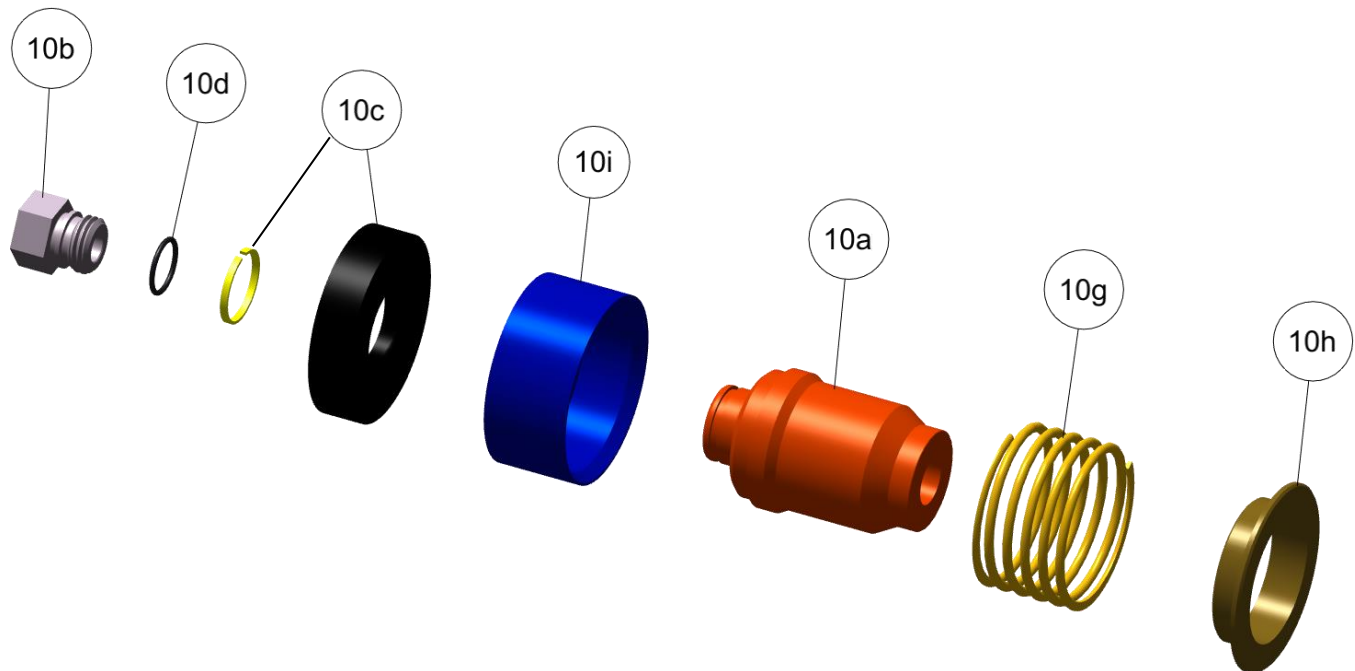


Figure 56 – 8.25 OD Cutter Piston Diagram

Piston Components	
Item #	Description
10a.	Piston Body
10b.	Indicator Bushing
10c.	Piston Seal
10d.	O-ring
10g.	Compression Spring
10h.	Spring Guide
10i.	Piston Skirt

	59 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

6.5.2 12.0" OD Piston Assembly Component Diagram

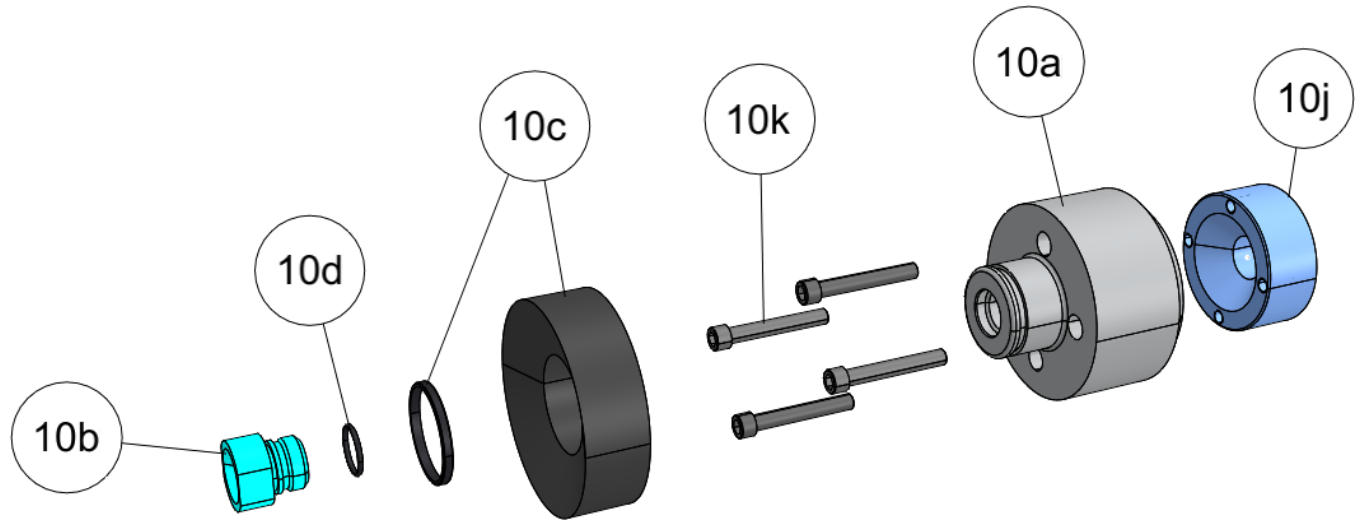


Figure 57 - 12"OD Piston Components

Piston Components	
Item #	Description
10a.	Piston Body
10b.	Indicator Bushing
10c.	Piston Seal
10d.	O-ring
10j.	Bottom Ring
10k.	Socket head cap screw

	60 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter				
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse

6.5.3 Assembling the Piston

1. Place Bottom Ring (10j) on workbench. Pick up the Piston body (10a) and align the 4 holes on the piston body with the 4 holes on the Bottom Ring.

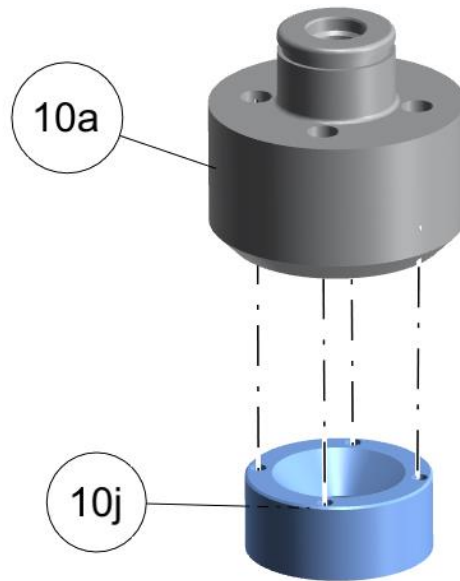


Figure 58

2. Slide the Piston Body (10a) onto the Bottom Ring, ensuring the 4 holes are aligned.

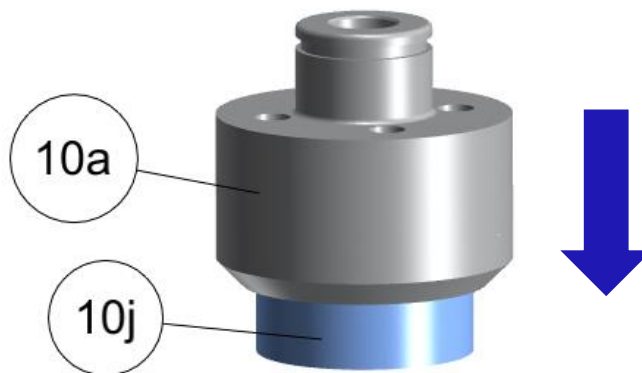


Figure 59

	61 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

3. Apply anti-galling compound to the 4 socket head cap screws (10k). Install the screws through the piston body (10a) and thread into the bottom ring (10j). Use a hex bit socket and torque wrench to torque each screw to the recommended value.

Refer to [8.2 Tightening Torques Chart](#)

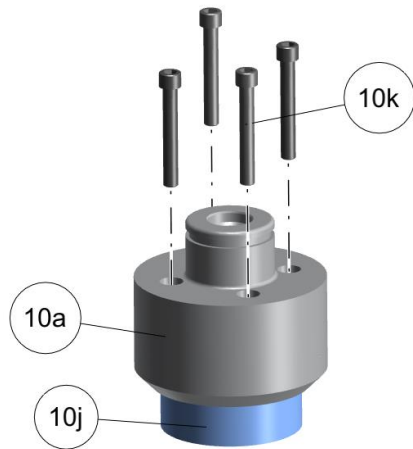


Figure 60

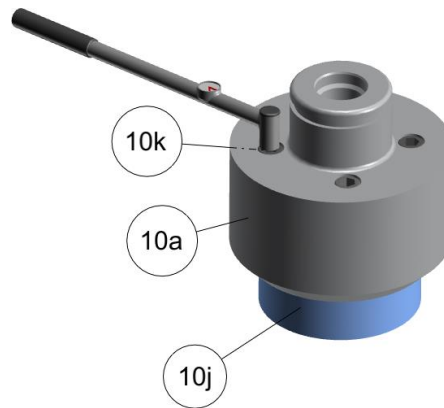


Figure 61

4. Secure piston assembly in a bench vise.
5. Apply grease to a new replacement piston rubber (10c).



Figure 62

	62 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

6. Slide replacement piston rubber (10c) over the neck of the piston body (10a), applying equal pressure on all sides. Ensure rubber is fully seated on the piston body.

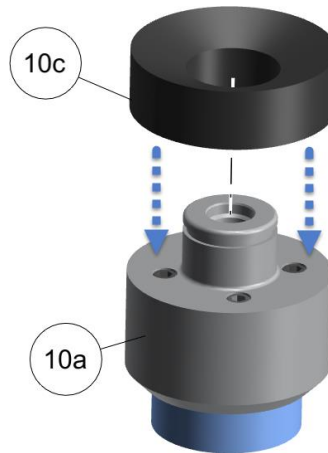


Figure 63

7. Use long-nose pliers to work the split ring onto the groove of the piston neck.

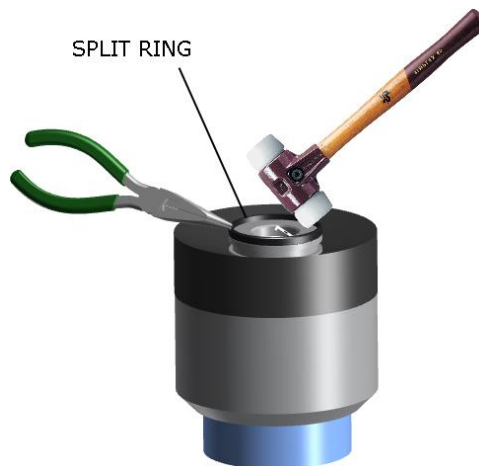


Figure 64



NOTE: On larger tool sizes, it may be necessary to use a plastic hammer or rubber mallet.



CAUTION: ALWAYS ENSURE PROPER SAFETY GOGGLES AND GLOVES ARE WORN WHEN PERFORMING THIS TASK.

End of Piston Assembly Procedure.

	63 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

6.6 Assembling the Casing Cutter

1. Set the cutter body (1) upright and secure in vise.
2. Heavily grease the knife rest spring (3) and drop into the cutter body ID (1).

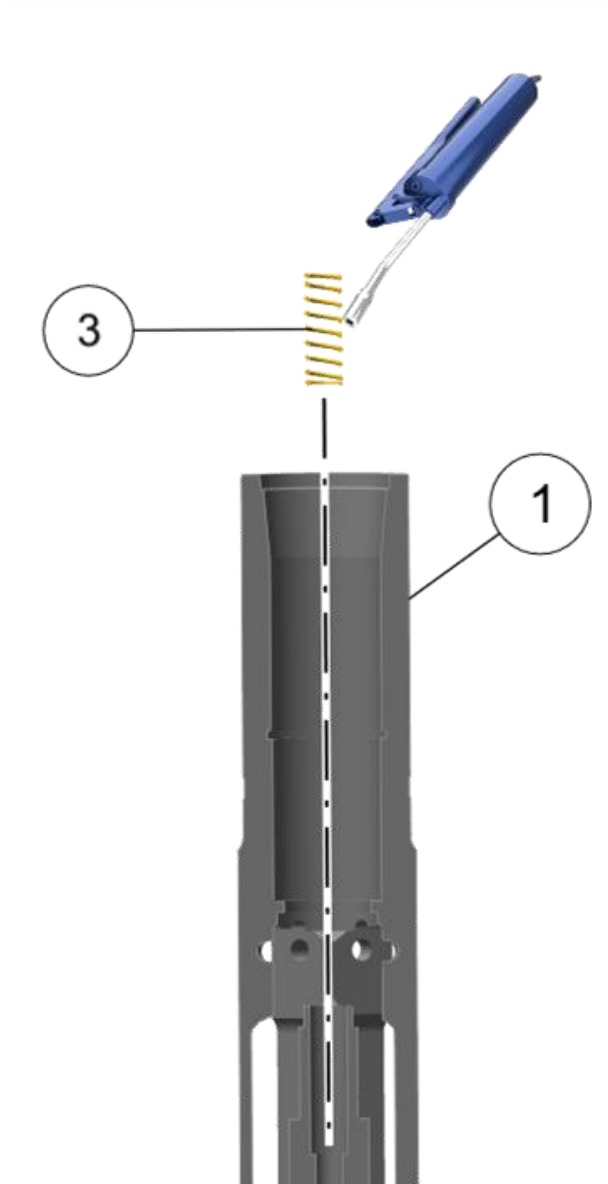


Figure 65 – Grease and assemble Knife Rest Spring

	64 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter				OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse

3. Apply grease to the Knife Rest Bushing (2).

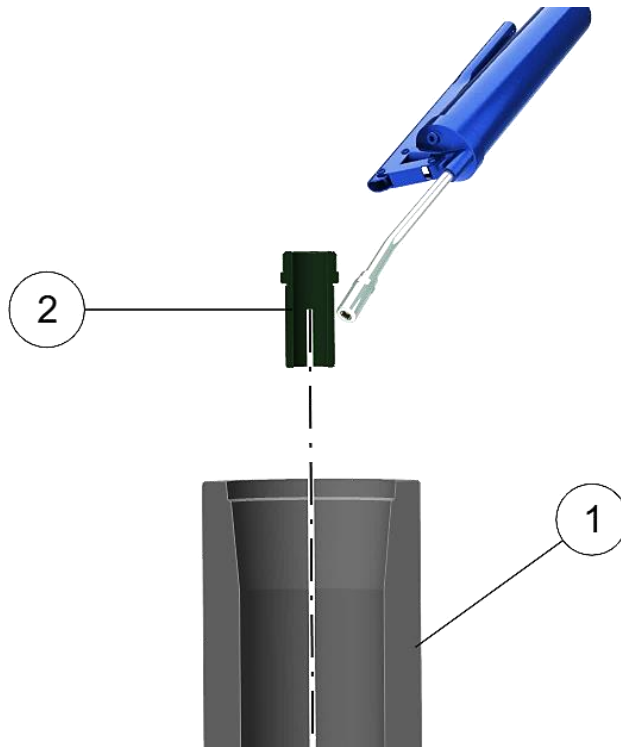


Figure 66 – Grease the Knife Rest Bushing

4. Use the hooked rod to lower the knife rest bushing (2) on to the compression spring (3).

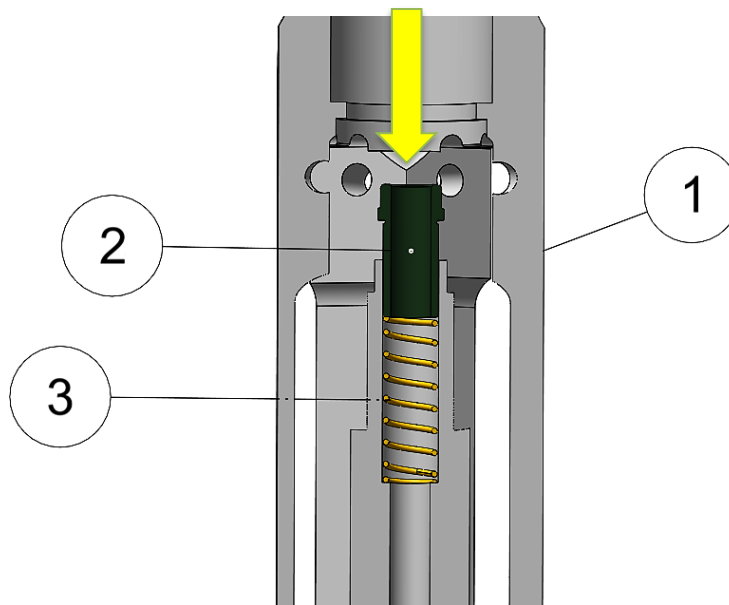


Figure 67 – Installing the knife rest bushing

	65 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

6.6.1 Install the Knives

NOTE: For new manufacturing, knives will not be installed in the base assembly. Only install the knife pins and retainer keys, omitting the knives from the following steps.

For M23 Casing Cutters:

5. Apply grease to one of the knife pins (4).

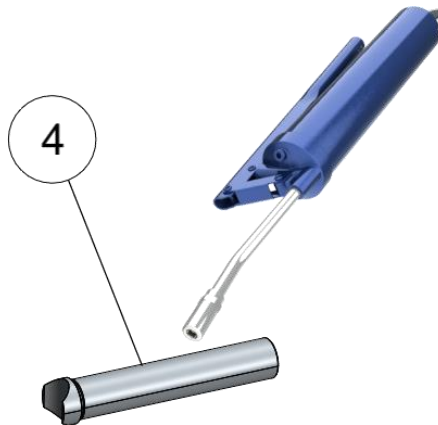


Figure 68 - Greasing M23 Knife Pin

NOTE: For M24 cutters, install the knife locking pin (5) first. The locking pin (5) is shorter than the standard knife pins (4) and has a threaded hole on the top side.

For M24 Casing Cutters:

6. Apply grease to the knife locking pin (5).



Figure 69 – Greasing M24 Knife locking pin

	66 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

7. Insert a knife pin (item 4 for M23) or knife locking pin (item 5 for M24) into the knife pin hole in the cutter body pocket (1).

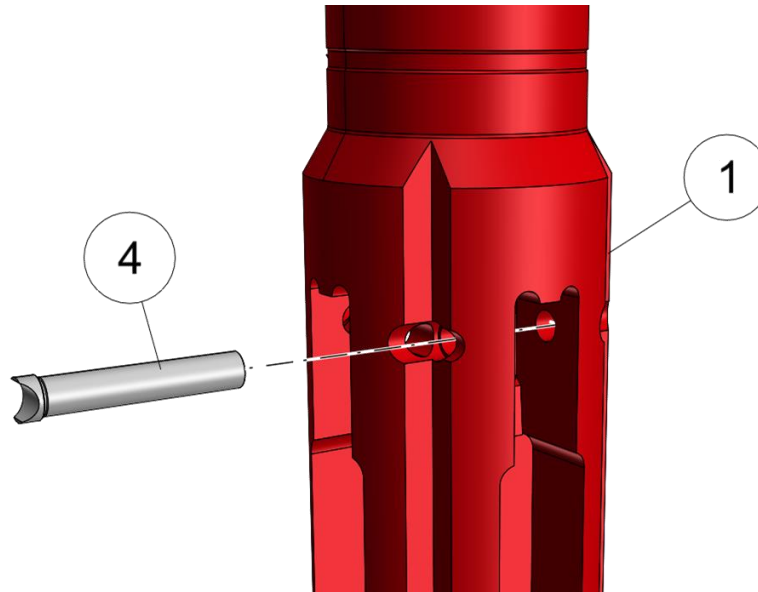


Figure 70 – Temporarily inserting a knife pin

8. Have a helper place a pry bar under the knife pin (4) and push the knife rest bushing (2) downward so that the shoulder on the bushing meets the body (1). Hold the knife rest bushing in this position for the next step.

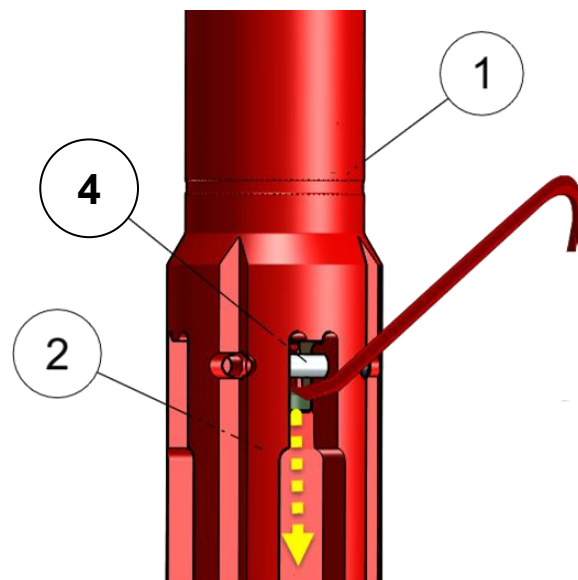


Figure 71 – Using the Pry Bar

NOTE: While it is possible to push down the knife rest bushing using only a pry bar, using the knife pin for leverage is the recommended method on larger tool sizes.

	67 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

9. Pick up the knife (13) with the tip in one hand and the heel in the other, slip the knife into its slot within the knife pocket, and set the bottom of the knife heel on top of the knife rest bushing (2).

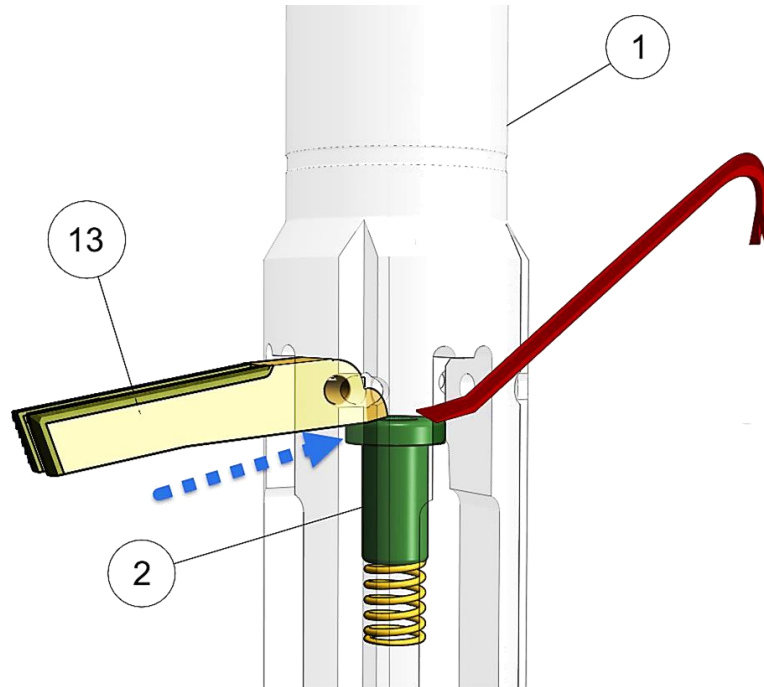


Figure 72 - Step 8 Illustration (Body shown transparent)

10. Lift the knife tip upward and continue to push the knife heel into the knife pocket until the hole in the knife (13) lines up with the knife pin hole in the body (1).

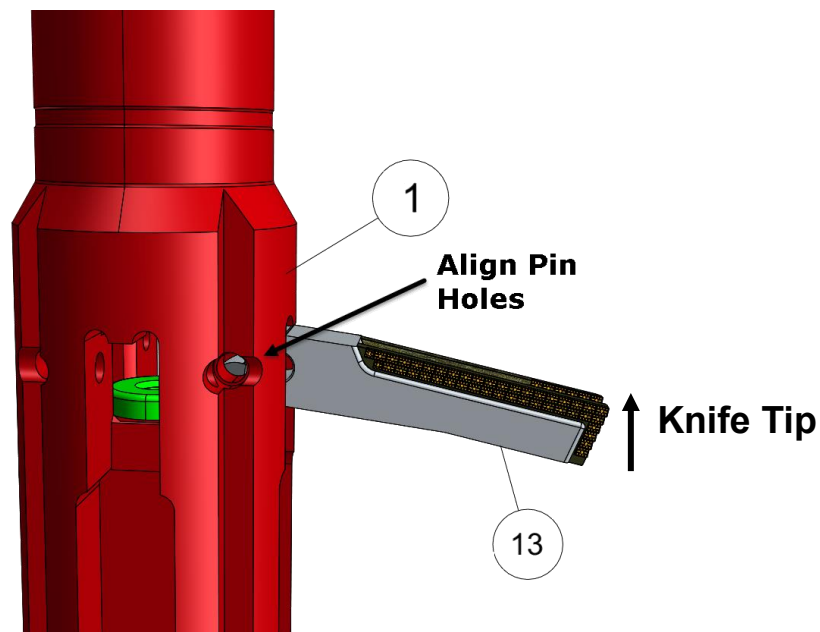


Figure 73 – Step 9 Illustration

	68 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter				OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse

11. Insert the knife pin (4) into the pin hole in the body (1). Hold the knife (13) by the point in a horizontal position. Have a helper remove the pry bar and the knife pin (4) (if used).

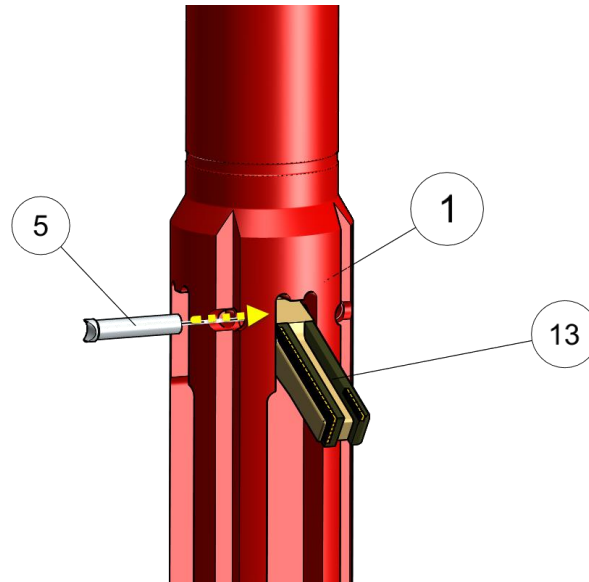


Figure 74

12. Install the remaining knives clockwise around the tool. Maintain the horizontal position of the first knife while installing the second, third, and fourth knives (for M24 cutters) to eliminate the need for prying down the knife rest bushing (2).

For M23 Cutters (step 13 & 14):

13. Install the knife pin retainer keys (5).

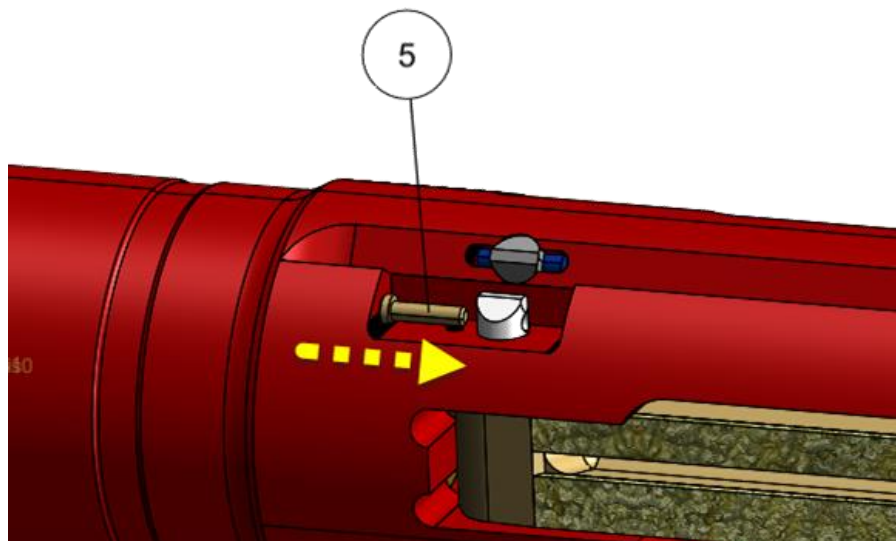


Figure 75

	69 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

14. Apply Loctite 242 to the knife pin retainer screws (6) and install. Use a torque wrench to make-up to the recommended value.

Refer to [Knife Pin Retainer Screw Torque Chart](#)

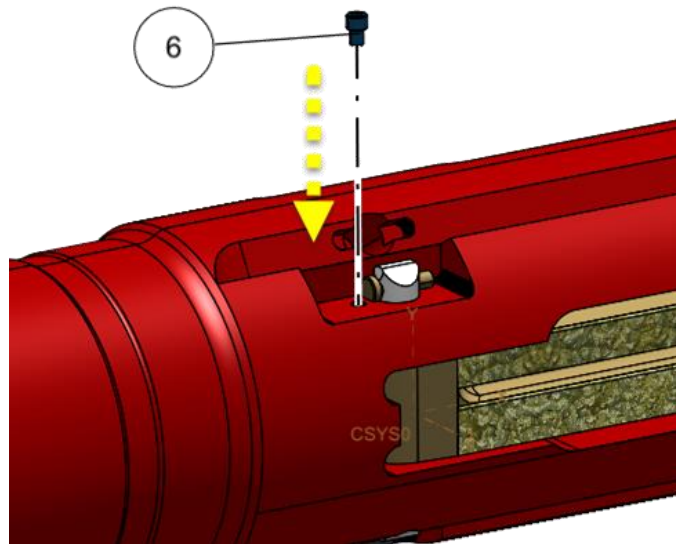


Figure 76 – Installing M23 Knife pin retainer screw

For M24 Cutters (step 15):

15. Apply Loctite 242 to the knife locking pin retainer screw (6) threads and install into the knife locking pin (5). Use a torque wrench to make-up to the recommended value.

Refer to [Knife Pin Retainer Screw Torque Chart](#)

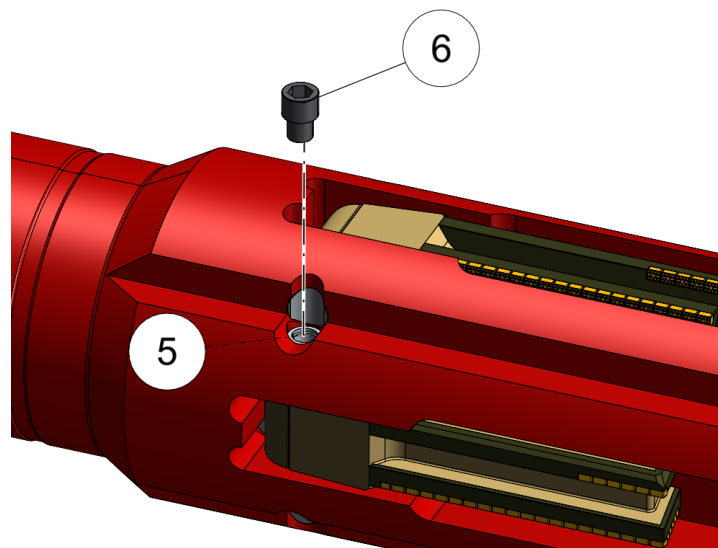


Figure 77 – Installing M24 Knife pin retainer screw

	70 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

6.6.2 Install the Piston Subassembly

Refer to [4.3 Inspection Criteria](#) for Piston Bore tolerances.

16. Push down the piston assembly (10) only far enough to permit threads on the indicator spider (9g) to engage in the next step.

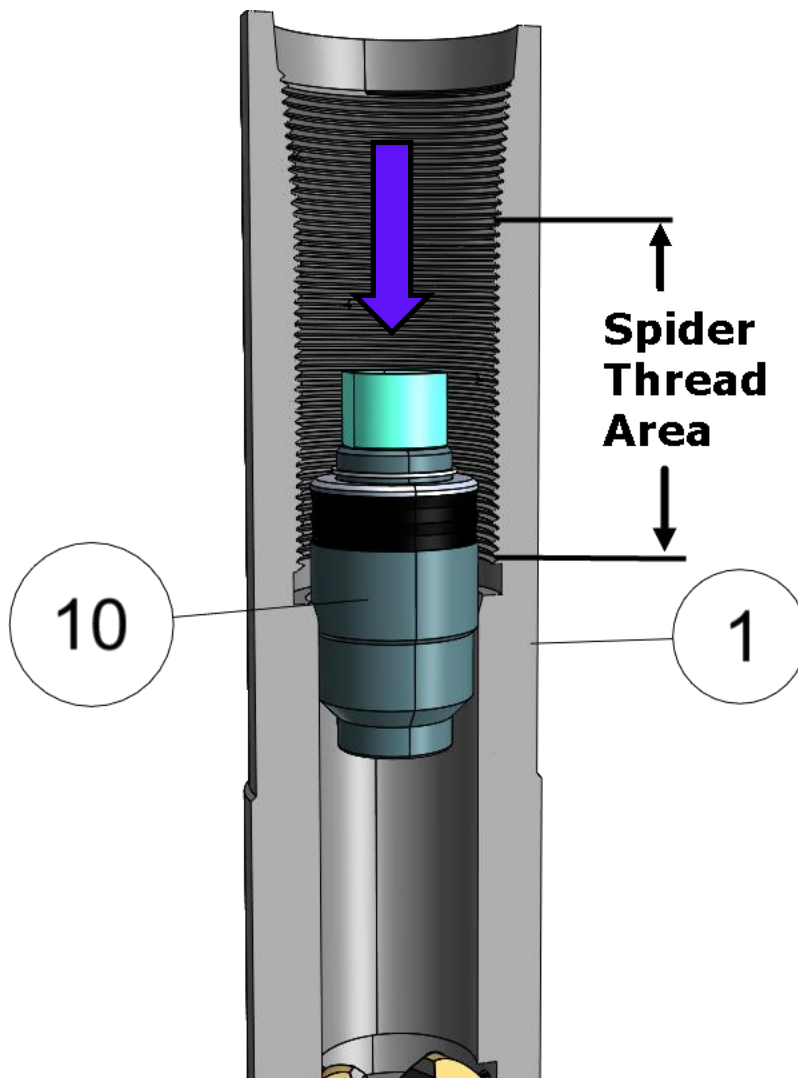


Figure 78

	71 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

6.6.3 Install the Indicator Subassembly

17. Begin to thread the Indicator Assembly (9) spider (9g) into the body (1). Allow make-up of the indicator spider (9g) to push down the piston assembly (10) in the following step.

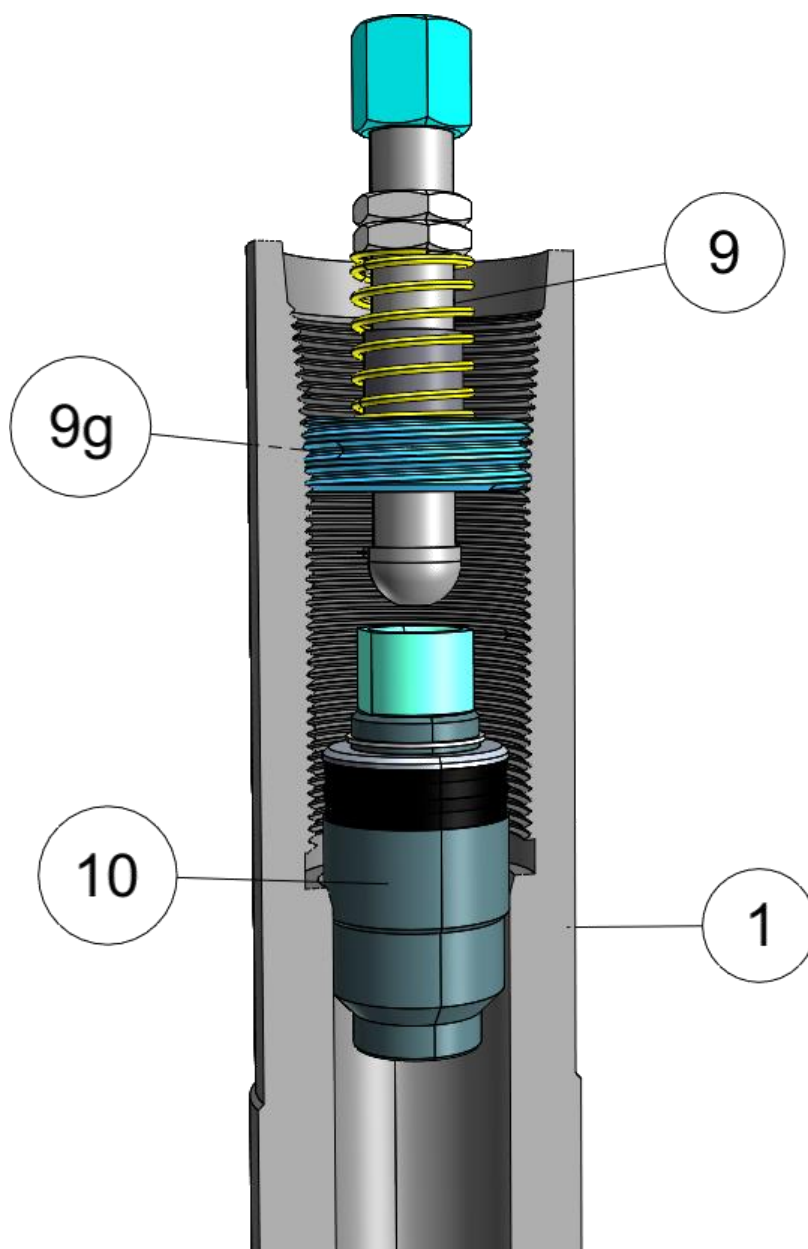


Figure 79

	72 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

18. Use the indicator wrench to run down the indicator spider (9g) until the indicator spider shoulders on the body (1).

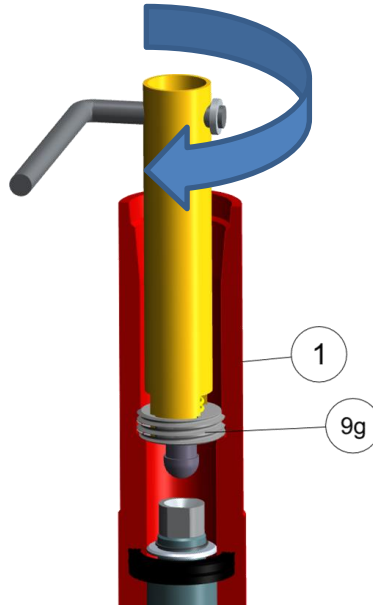


Figure 80 – Installing the indicator assembly

Note: Bump the indicator spider snug, not tight. The thread is meant only to hold the indicator assembly in place when the top sub is not in place.

19. Install the top sub (8) and tighten by hand. **DO NOT TORQUE.**

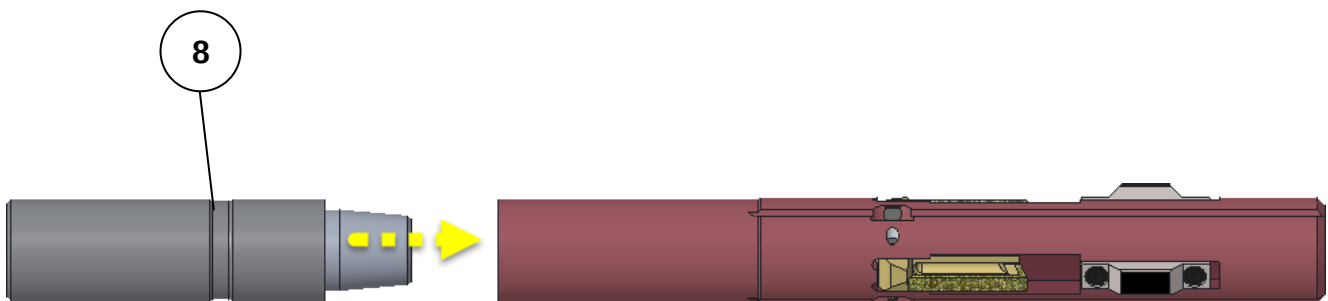


Figure 81 – Installing the Top Sub

20. Paint the exterior of the tool Weatherford red and the knives gold before storing per WC-010 and WC-346.

End of Assembly Procedure.

	73 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

6.7 How to measure Knife Length

The length of a casing cutter knife is measured as the shortest distance from the centerline of the pin hole to the tip of the knife, as shown in [Figure 82](#) below.

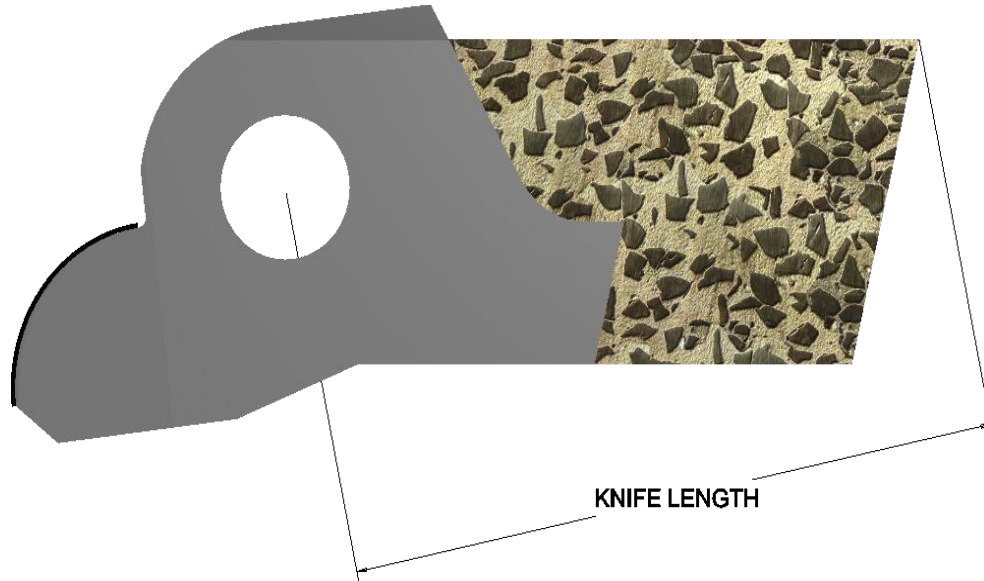


Figure 82 – Measuring Knife Length

6.7.1 Equipment Required

- Calibrated straight edge ruler or calipers

	74 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

6.7.2 Measuring Knife Length

1. Insert knife pin (4) with center-punched hole into knife pin hole (13).



Figure 83 - Inserting Pin into Knife

2. Use calibrated calipers or straight edge ruler to measure all knives. Measure from the center punch on the pin to the tip of the dressed knife.



Figure 84 – Measuring Knife length with calibrated ruler

3. Record all measurements taken.

	75 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

6.8 Setting the Indicator

6.8.1 Introduction

This section consists of instructions for setting the indicator to a pre-determined knife sweep diameter in preparation to load out for a job. This procedure is intended to be performed in a workshop environment and may not apply to operations on the rig.

6.8.2 General Information

- 6.8.2.1 The indicator provides a pressure drop at the surface when the blades have extended to their desired sweep indicating the pipe is cut.
- 6.8.2.2 The indicator function is controlled by the location of the jam nuts on the indicator stem. The jam nuts are pre-set so that the indicator bushing, located in the top of the piston, will pull away from the stem when the knives reach an angle of 45 degree to 55 degree from the vertical.
- 6.8.2.3 The sweep of the knife length must exceed the casing outside diameter (OD) for a thorough cut, therefore, no one indicator setting can serve for all casing sizes and all knives. The indicator must be set according to job specifications. The tool must be in an upright position, with the top sub removed, when the indicator is being set
- 6.8.2.4 This procedure involves calculating the distance from the cutter body to the end of the knives when they reach the desired sweep
- 6.8.2.5 Setting the indicator so that the jam nuts fully compress the spring when the knives have extended to the desired sweep

6.8.3 Equipment Required

- Wrench for Hex Jam Nuts
- Ring gages, OD Callipers or Tri-point Calipers
- Desired knife sweep from Hydracut™ (or manual calculations)
- Calibrated straight edge ruler or tape measure

6.8.3.6 Special Tools

- Indicator Wrench

	76 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

6.8.4 Instructions for setting the indicator

NOTE: Before starting this procedure, determine the appropriate diameter of the sweep desired and install the knives

1.
 - a. Remove the indicator assembly (9). Use a wrench to break the jam nuts (9c).
 - b. Run both jam nuts (9c) up the stem (9d) against the cap (9a).

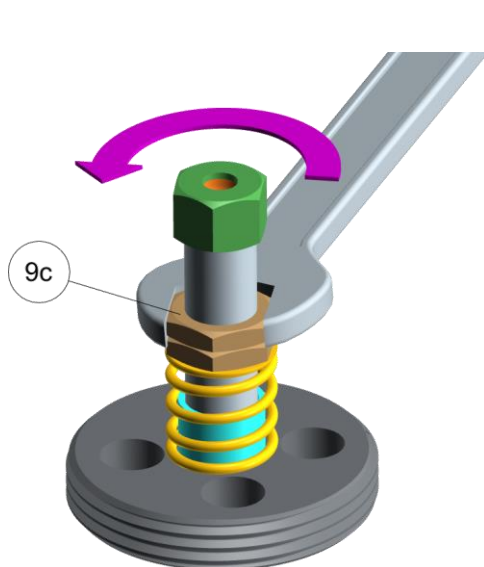


Figure 85

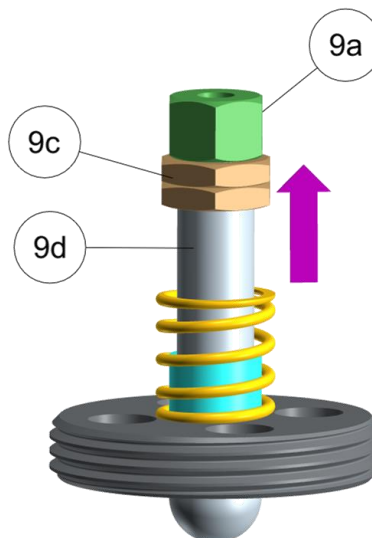


Figure 86

2. Reinstall the indicator assembly (9) firmly against the shoulder at the bottom of the tool joint thread.

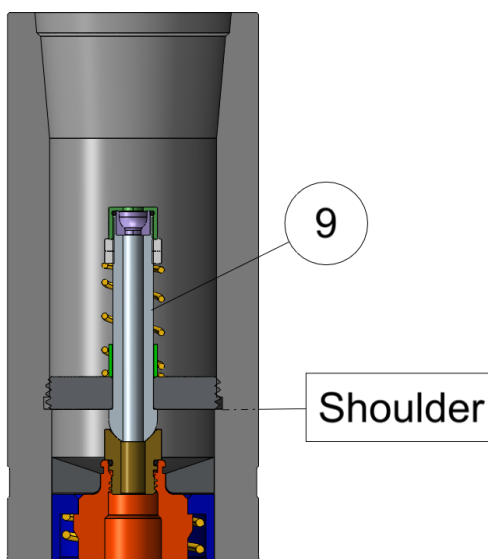


Figure 87

	77 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

3. Measure and record the distance from the tool joint shoulder to the top side of the indicator spider (9g). **Record this as Measurement 1.**

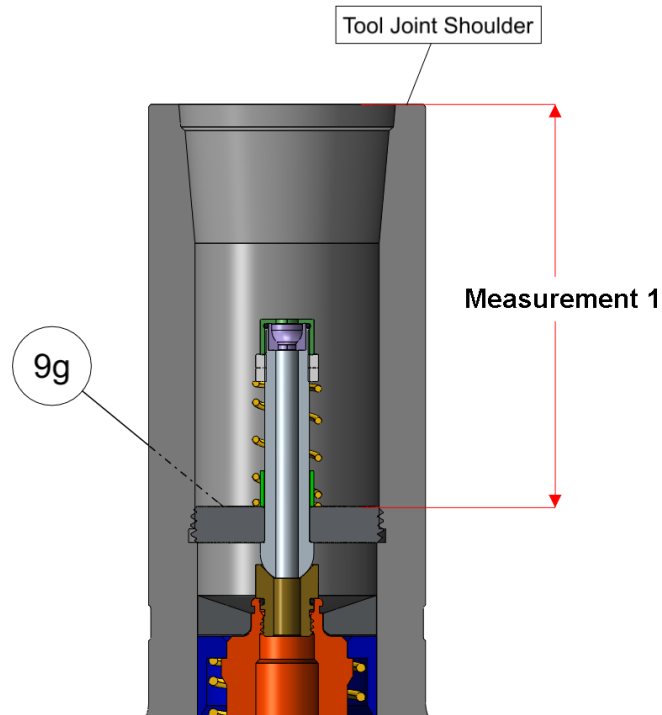


Figure 88

4. Have helpers lift and hold two knives (13) (or three knives or M24 cutters) to a full horizontal position.

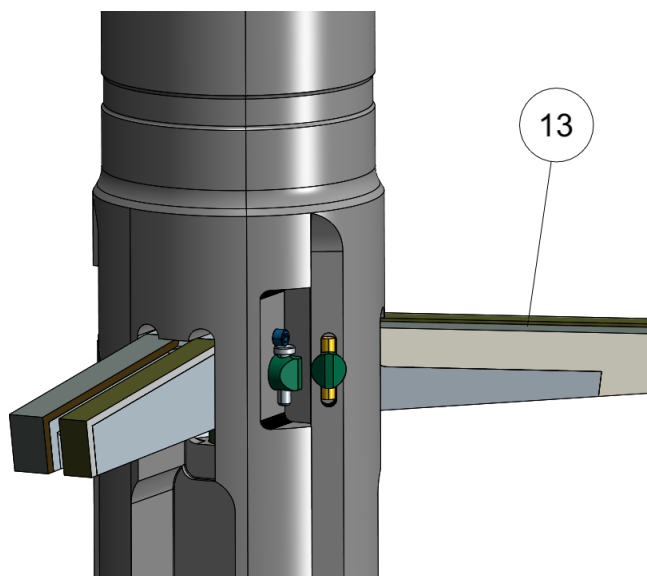


Figure 89 – Knives Held in Horizontal Position

	78 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

5. Pull the remaining knife outward until the point of the knife reaches a distance from the body (1) equal to half the diameter of the predetermined sweep, minus half the diameter of the tool body.

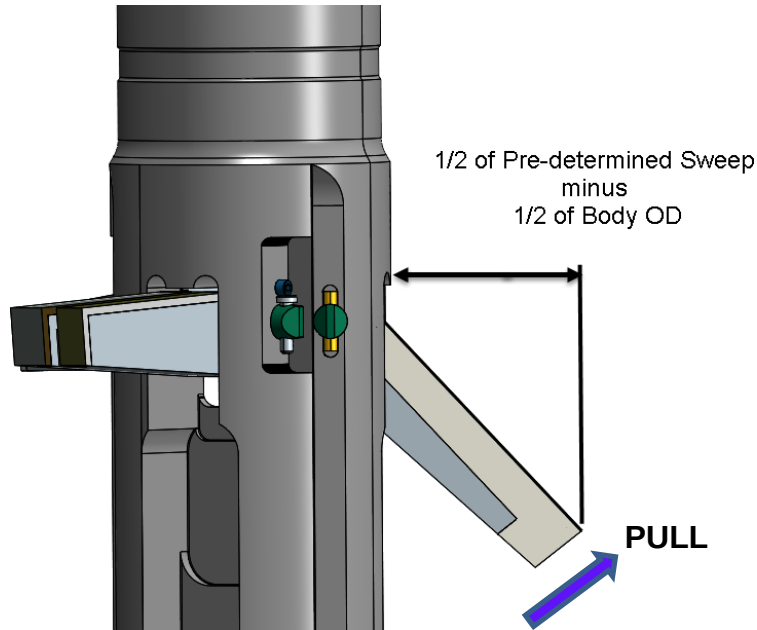


Figure 90

6. Push down the indicator stem (9d) and the piston (10a) until the bottom of the piston contacts the heel of the knife (13) being held partially open.

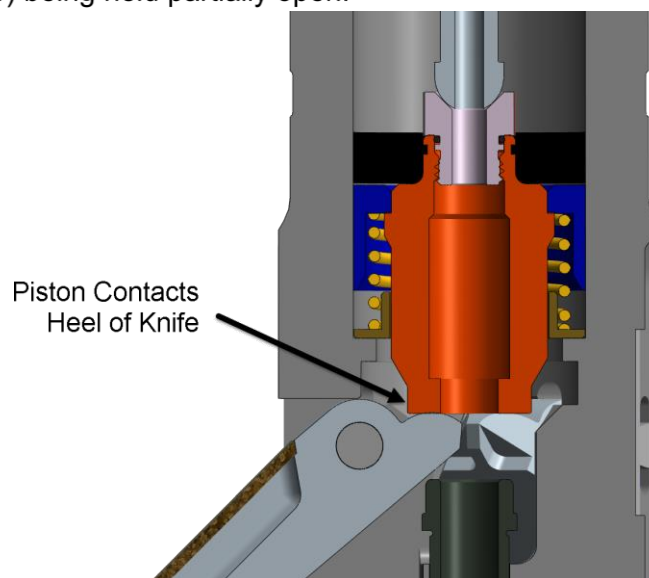


Figure 91

NOTE: *The handle of a sledge or heavy ball peen may be required for driving down the piston in larger tools.*

	79 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

7. Continue to press down the indicator stem (9d) lightly to ensure contact with the indicator bushing.
8. Measure from the tool joint shoulder to the top of the indicator cap (9a). (You can release after taking this measurement). **Record this as Measurement 2.**

The difference between this distance (measurement 2) and the distance from the tool joint shoulder to the top side of the spider (measurement 1) is the distance that the top of the cap should be from the top of the spider (9g) for this particular setting (measurement 3).

Record this as Measurement 3.

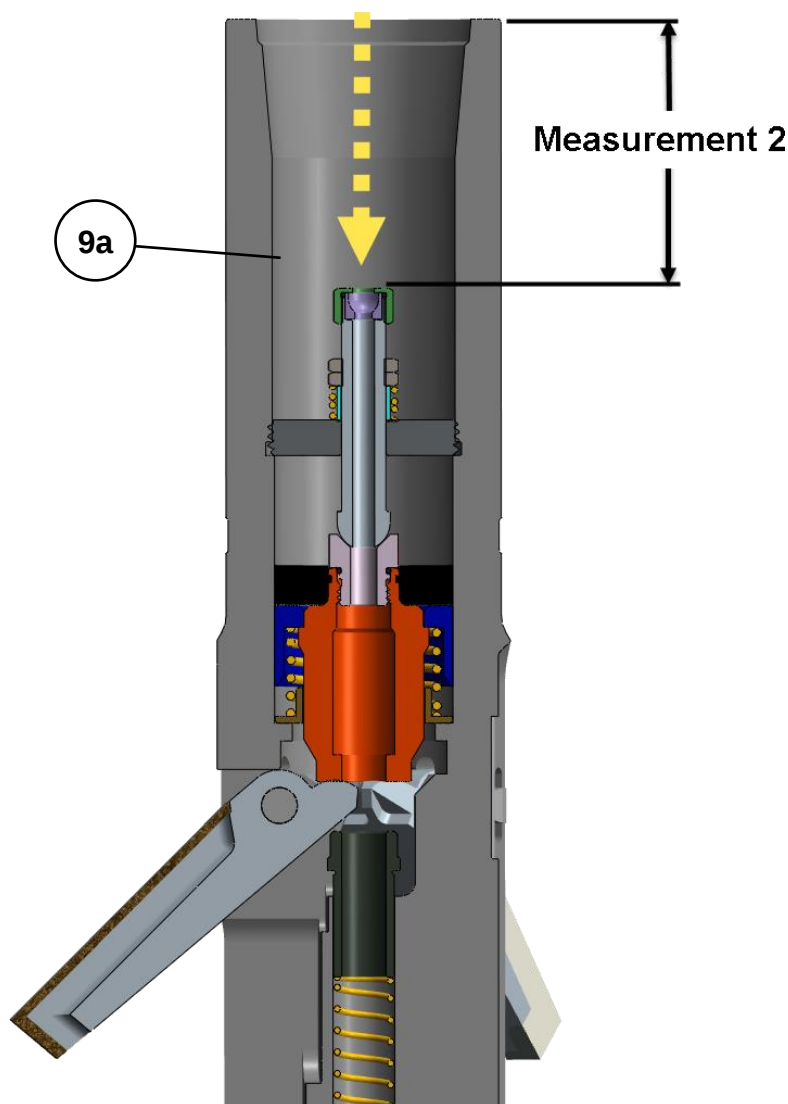


Figure 92

	80 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

10. Use the indicator wrench to remove the Indicator assembly from the body.
11. Adjust the jam nuts (9c) down the indicator stem (9d) so that when the spring (9e) is completely compressed, the distance between the top of the retainer cap (9a) and the top of the spider (9g) is equal to measurement 3.

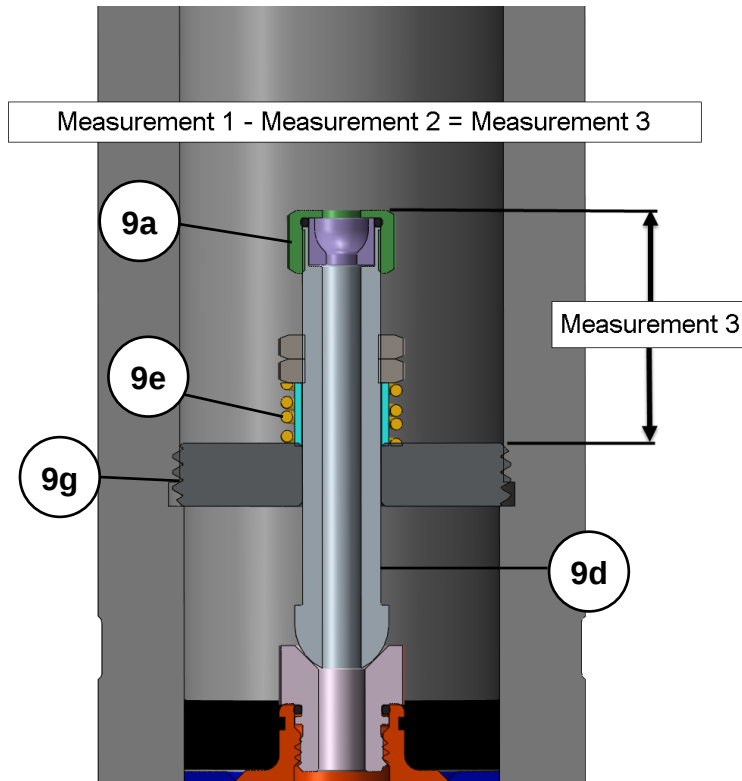


Figure 93

12. Use the indicator wrench to reinstall the indicator assembly, making sure that the spider is run all the way down the threads and shoulders on the body.

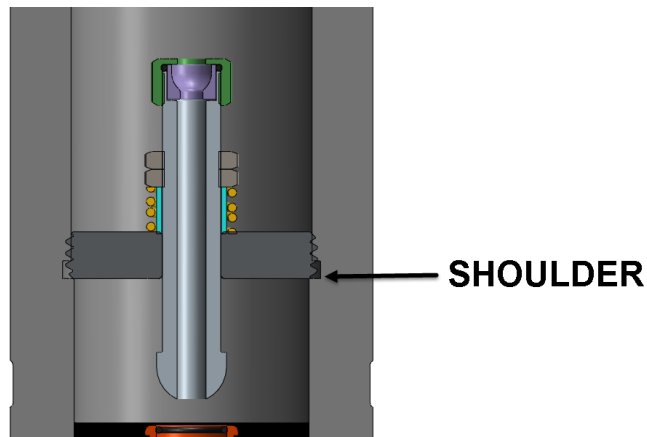


Figure 94

	81 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

13. Push down the top of the retainer cap as far as it will go. Verify max sweep with a ring gage. For M24 cutters, OD calipers can be used with a tape measure, taking two measurements 180 degrees apart to confirm the knife sweep. For M23 cutters, tri-point calipers must be used instead.

This measurement should match your desired sweep from **Hydracut™** calculations.



Figure 95 – Measuring knife sweep with OD calipers



Figure 96 – Taking measurement of knife sweep with OD calipers and tape measure

14. Repeat step 12 for each set of cutter knives.

NOTE: For complete instructions on measuring knife sweep at the Rig Location, refer to **GL-INTS-OEPS-L4-499 Verifying M24 Cutter Knife Sweep on Rig Location (Cutter Dressed with Indicator Assembly)**

	82 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

15. If adjustments to the knife sweep diameter are needed, remove the indicator assembly and reset the jam nuts.

- To increase the knife sweep, set the jam nuts higher on the indicator stem.
- To decrease the knife sweep, set the jam nuts lower on the indicator stem.

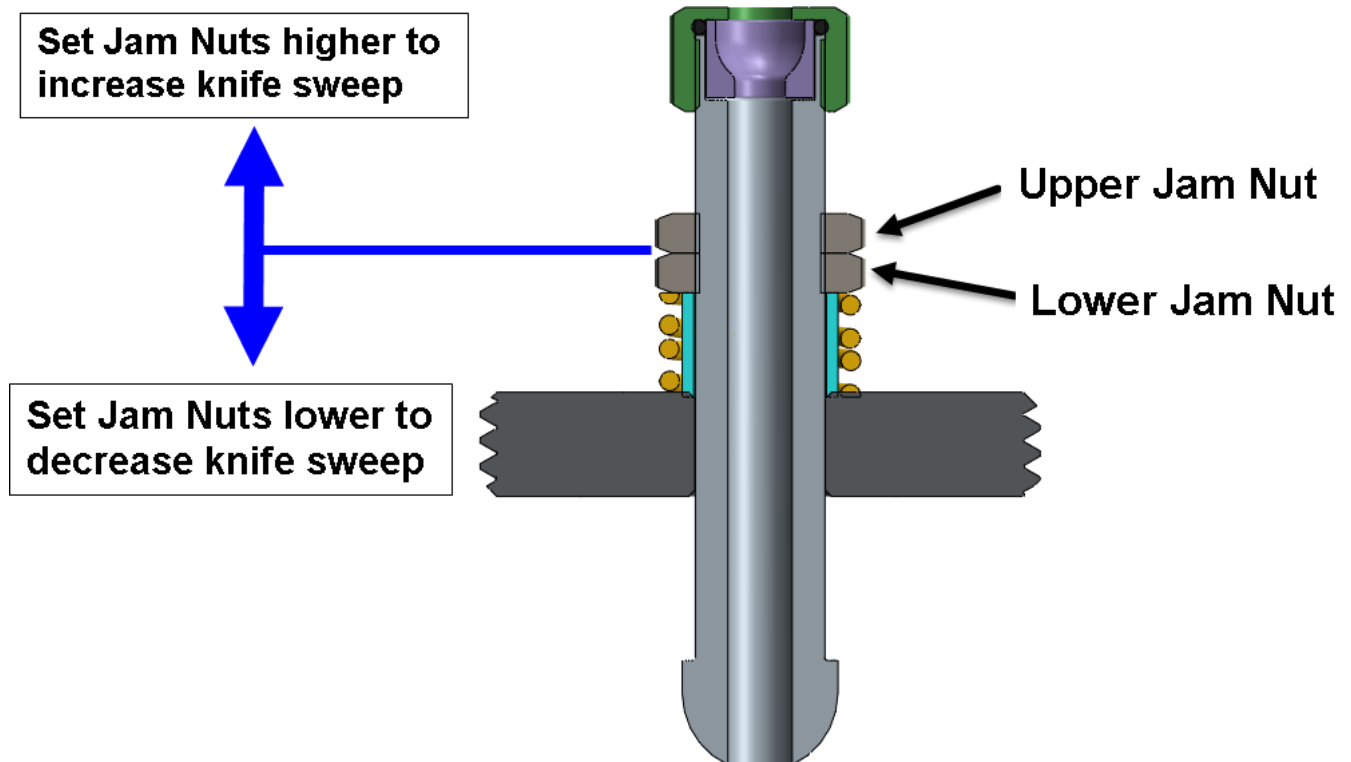


Figure 97 – Adjusting the Jam Nuts.

16. Repeat this procedure until desired knife sweep is obtained.
17. Install indicator assembly back into the cutter body using the indicator wrench. Ensure the spider is run all the way down until it shoulders on the body.

End of Setting Indicator Procedure.

	83 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

SECTION 7: PARTS LISTS AND ILLUSTRATIONS

7.1 Introduction

This section of the manual contains the complete list of parts for each size A-1 casing cutter assembly, along with an itemized illustration for part identification when ordering replacement parts and new tools.

7.2 General Information

7.2.1 Standard Assemblies

A-1 Casing Cutter assemblies have been standardized based on a simplified approach of having a single part number for each size tool. All other assembly part numbers are no longer available to order.

7.2.2 Item Numbers

Item numbers for all assembly components have been restructured to be consistent across all casing cutter assemblies. These item numbers are referenced throughout the procedures in this manual.

7.2.3 Parts Lists

- For the purpose of this manual, the Parts List for each casing cutter assembly is structured with an indicator subassembly and piston subassembly, however some tools may not be structured this way when ordering replacement parts. In those cases, replacement parts must be ordered individually.
- Parts Lists are organized based on a standard assembly structure established across all casing cutters, which is described in [2.5 Standard Assembly Components](#). When ordering parts, it is important to fully understand the recent changes that affect all A-1 Casing Cutter assemblies.

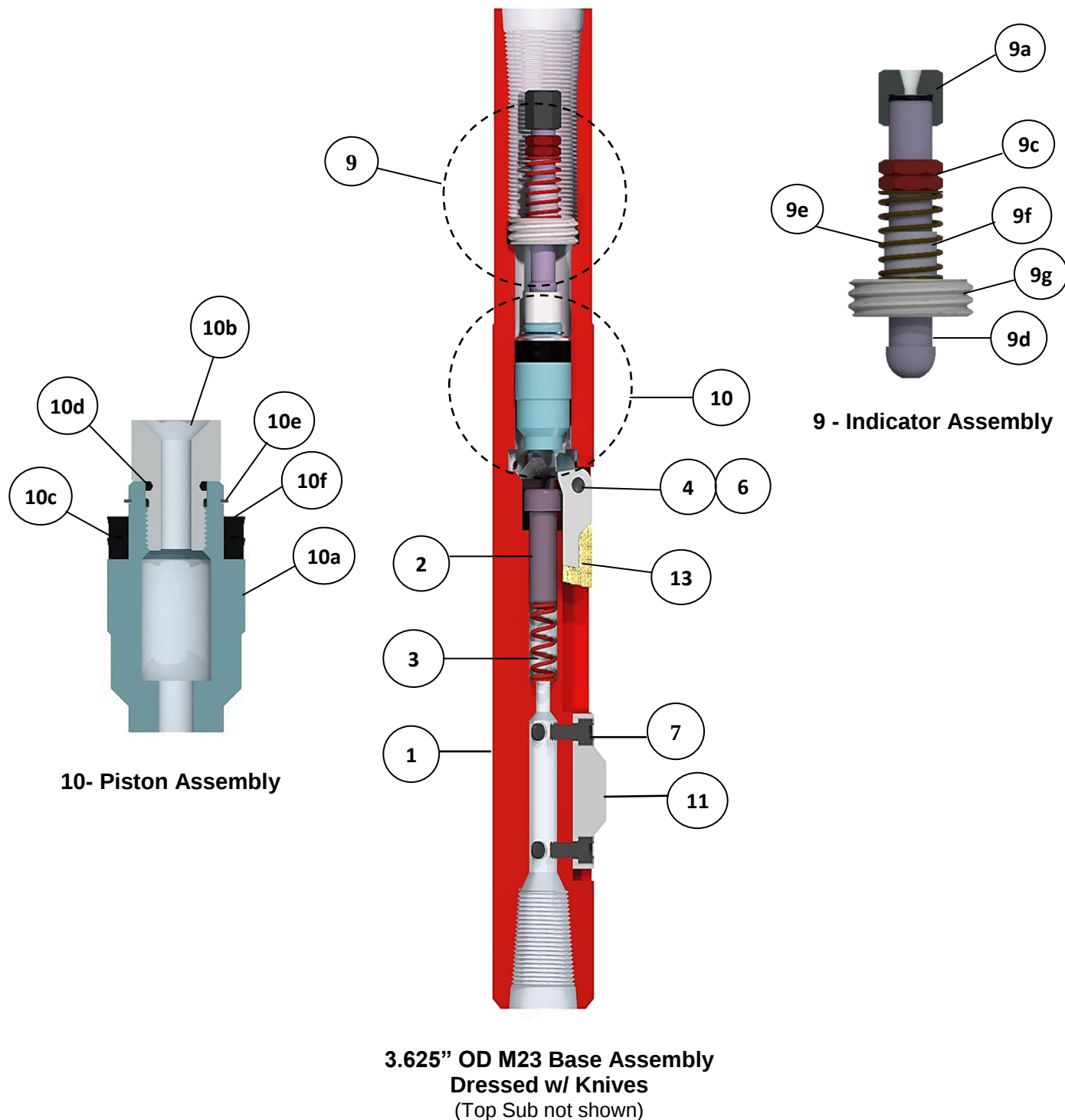
7.2.4 Part Numbers

- New Part numbers for the redesigned insert knives have replaced the old legacy part numbers, and the old inserted knives are no longer available to order.
- Legacy numbers will no longer be published in the Parts Lists. The Windchill/JDE part numbers store the legacy number for historical reference and maintaining these throughout technical documentations is unnecessary.
- For referencing existing parts that have been replaced by new numbers, or to identify parts without a Windchill or JDE number stamped, use Endecca or Windchill to search for the legacy number (3rd Item Number) or part number followed by an asterisk (*). Contact Engineering through the VSES system to request support if needed.

	84 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

7.3

3.63" OD M23 CASING CUTTER



	85 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

3.63" OD M23 CASING CUTTER

Parts List - 00109462 - Cutter, CSG, INTR HYD, 3.63 OD

Base Assembly

Item #	Part #	Qty.	Description
1	00109460	1	Casing cutter body
2	00109261	1	Knife rest bushing
3	00103828	1	Compression spring
4	00109339	3	Knife pin
5	--	--	--
6	00104219	3	Screw, SHC 10-24 UNC-2A x 0.5-in. lg
7	00104122	6	Screw, SHC .50-13 UNC-2A x 1.0-in. lg
8	00112309	1	Sub, Top

Indicator Assembly

Item #	Part #	Qty.	Description
9	00109461	1	Indicator assembly
9a	00109242	1	Cap, retainer, .375 ID
9b	00765079	1	O-ring -115 WE105 (NBR 70 std)
9c	00109243	2	Nut, hex, jam, .875-14 UNF
9d	00109245	1	Stem, Indicator, .25 ID
9e	00103843	1	Spring, compression, 1-5/16 OD
9f	00109244	1	Sleeve, indicator
9g	00109450	1	Spider, indicator

Piston Assembly

Item #	Part #	Qty.	Description
10	-	1	Assembly, piston
10a	00109247	1	Casing cutter piston
10b	00109246	1	Indicator bushing, .437 ID STD
10c	00104126	1	Packing seal
10d	00102804	1	O-ring, Nitrile 70 Duro
10e	00104230	1	External ring retainer
10f	00109271	1	Piston seal retainer

	86 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

3.63" OD M23 CASING CUTTER

Accessory Parts

Stabilizer Pads

Item #	Part #	Qty.	Description	Sweep Dia.
11	00109056	3	Pad, stabilizer, 05.50 casing, 13.7 to 22.84#	4.454
	00109432	3	Pad, stabilizer, 07.00 casing, 17.0 to 26.00#	6.13

Bull Nose Sub

Item #	Part #	Qty.	Description
12	00109174	1	Sub, bull nose

NOTE: Accessory parts are not included in the cutter assembly and must be ordered separately.

Optional Parts

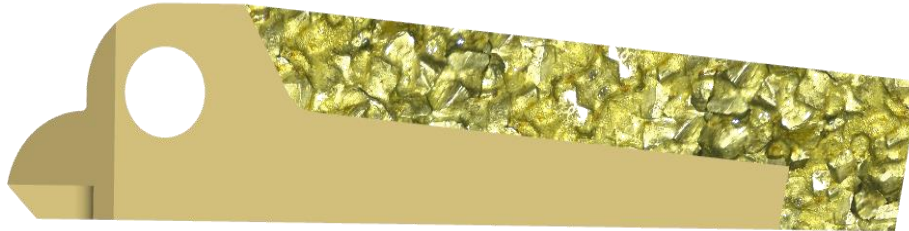
Top Sub

Item #	Part #	Qty.	Description
8	00100121	1	2 3/8-in. API IF Box x Pin
	00112309	1	2 3/8-in. API Reg. Box x Pin
	00112309	1	2 3/8-in. API Reg. Box x Pin

	87 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

3.63" OD M23 CASING CUTTER

3.63 OD Cutter Knife Selection Chart



Crushed Carbide Type							
Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	00109501	00114800	4.50 or 5.00	--	3	2.2	6.8
	00109502	00114799	7.00	7.00	3	4.7	11.9



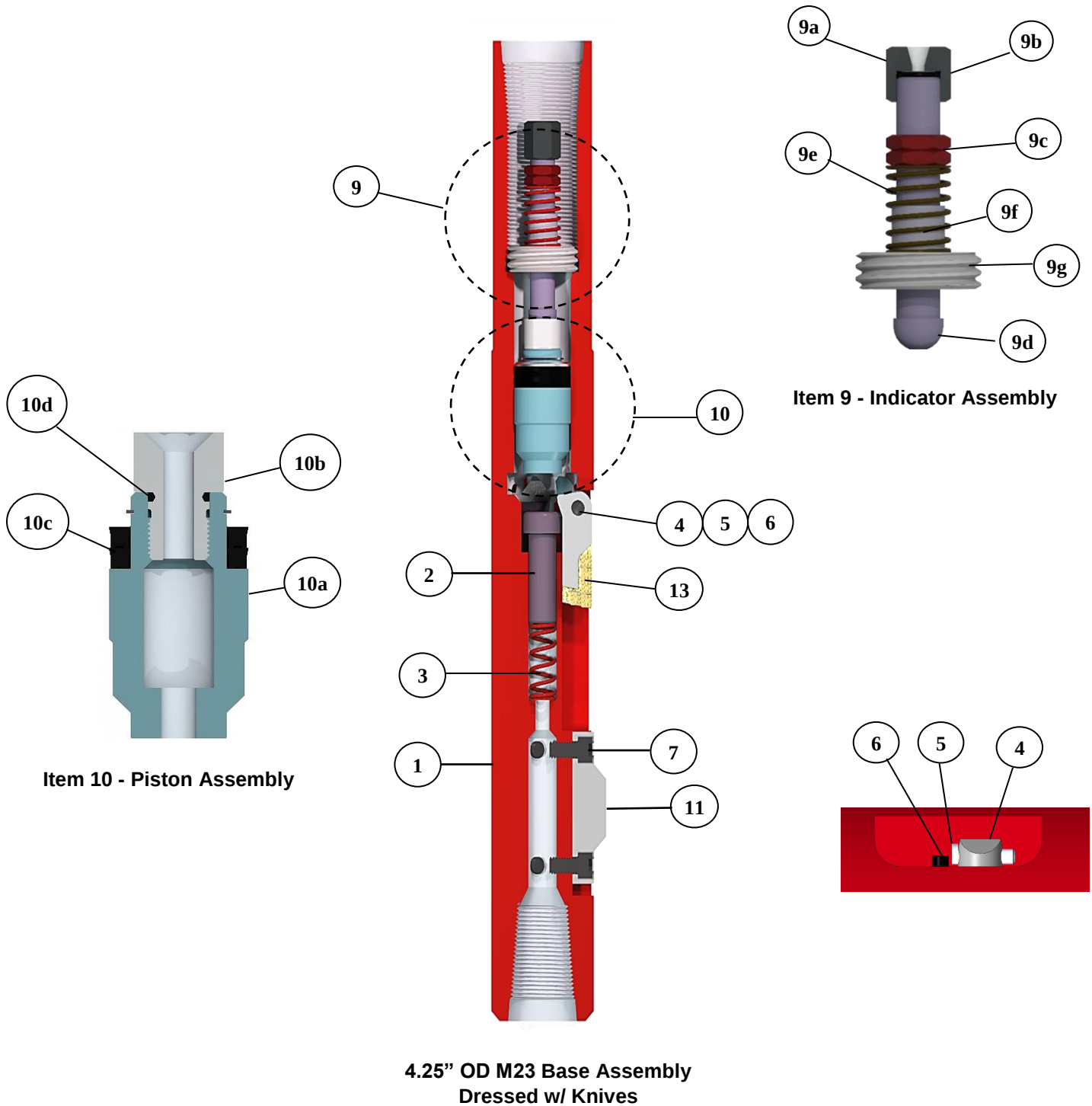
Insert Type Knives – High performance							
Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	02884543	02884551	5.00	--	3	2.1	6.6
	02884544	02884552	7.00 or 7.625	--	3	2.2	6.9
	02884545	02884553	8.625	6.625	3	2.9	8.4
	02884546	02884554	9.625 or 10.75	9.625	3	4.7	11.9

NOTE: Knives are not included in the cutter assembly and must be ordered separately

	88 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

7.4

4.25" OD M23 CASING CUTTER



	89 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

4.25" OD M23 CASING CUTTER

Parts List - 00116163 - ASSY, CSG Cutter, 04.25 OD

Base Assembly

Item #	Part #	Qty.	Description
1	00109058	1	Casing cutter body
2	00109261	1	Knife rest bushing
3	00203828	1	Compression spring
4	00114759	3	Knife pin assembly
5	00109063	3	Knife pin retainer key
6	00104121	3	Screw, SHC .25-20 UNC-2A x 0.375-in. lg
7	00104122	6	Screw, SHC .50-13 UNC-2A x 1.0-in. lg
8	00109086	1	Sub, top, 2 7/8-in IF box

Indicator Assembly

Item #	Part #	Qty.	Description
9	00114758	1	Indicator assembly, .250 nozzle
9a	00109242	1	Cap, retainer
9b	00765079	1	O-ring -115 WE105 (NBR 70 standard)
9c	00109243	2	Nut, hex, jam, .875-14 UNF
9d	00109245	1	Stem, Indicator, .25 ID
9e	00103843	1	Spring, compression, 1-5/16 OD 00.093 wire
9f	00109244	1	Sleeve, indicator
9g	00109450	1	Spider, indicator
9h	00104423	1	Orifice, .250 ID

Piston Assembly

Item #	Part #	Qty.	Description
10	00109958	1	Assembly, piston, .625 indicator bushing
10a	00109060	1	Piston, casing cutter
10b	00109054	1	Bushing, indicator, .625 ID STD
10c	00104120	2	Seal, loaded lip
10d	00765072	1	O-ring

	90 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

4.25" OD M23 CASING CUTTER

Accessory Parts

Stabilizer Pads				
Item #	Part #	Qty.	Description	Sweep Dia.
11	00109048	3	Pad, stabilizer, 05.50 casing, 13.7 to 22.84#	4.454
	00109068	3	Pad, stabilizer, 07.00 casing, 17.0 to 26.00#	6.13
Bull Nose Sub				
Item #	Part #	Qty.	Description	
12	00109336	1	Sub, bull nose	

NOTE: Accessory parts are not included in the cutter assembly and must be ordered separately.

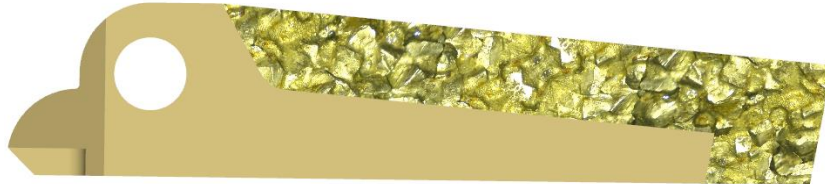
Optional Parts

Top Sub			
Item #	Part #	Qty.	Description
8	00109084	1	2 3/8-in. IF Box—upper connection
	00109085	1	2 3/8-in. Reg. Box—upper connection

	91 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

4.25" OD M23 CASING CUTTER

4.25 OD Cutter Knife Selection Chart



Crushed Carbide Type							
Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	00109503	00114767	5.00	--	3	1.8	7.3
	00109504	00114768	7.00 or 7.625	--	3	3.0	8.7
	00109505	00114769	8.625	--	3	3.7	10.2
	00109506	00114770	9.625 or 10.75	9.625	3	5.9	14.5



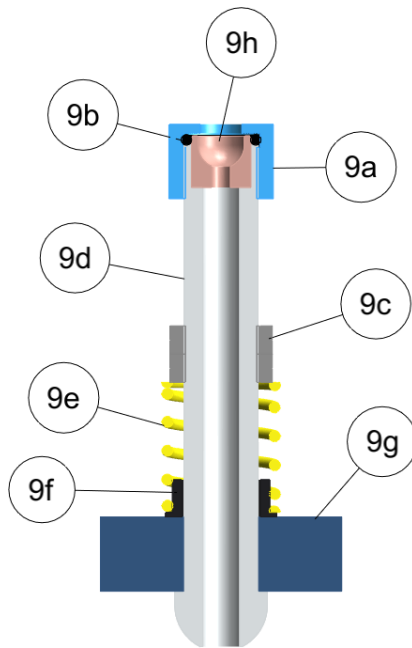
Insert Type Knives – High performance							
Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	2883281	2883289	5.00	--	3	1.8	7.3
	2883282	2883290	7.00 or 7.625	6.625	3	3.0	8.7
	2883283	2883291	8.625	7.00	3	3.7	10.2
	2883284	2883292	9.625 or 10.75	9.625	3	5.9	14.5

NOTE: Knives are not included in the cutter assembly and must be ordered separately

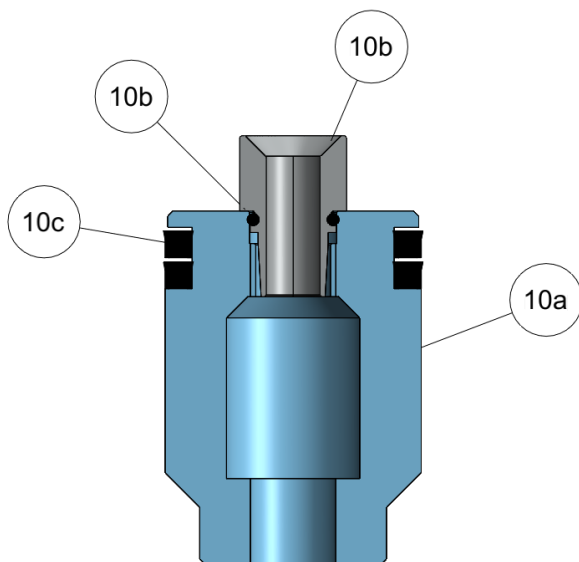
	92 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

7.5

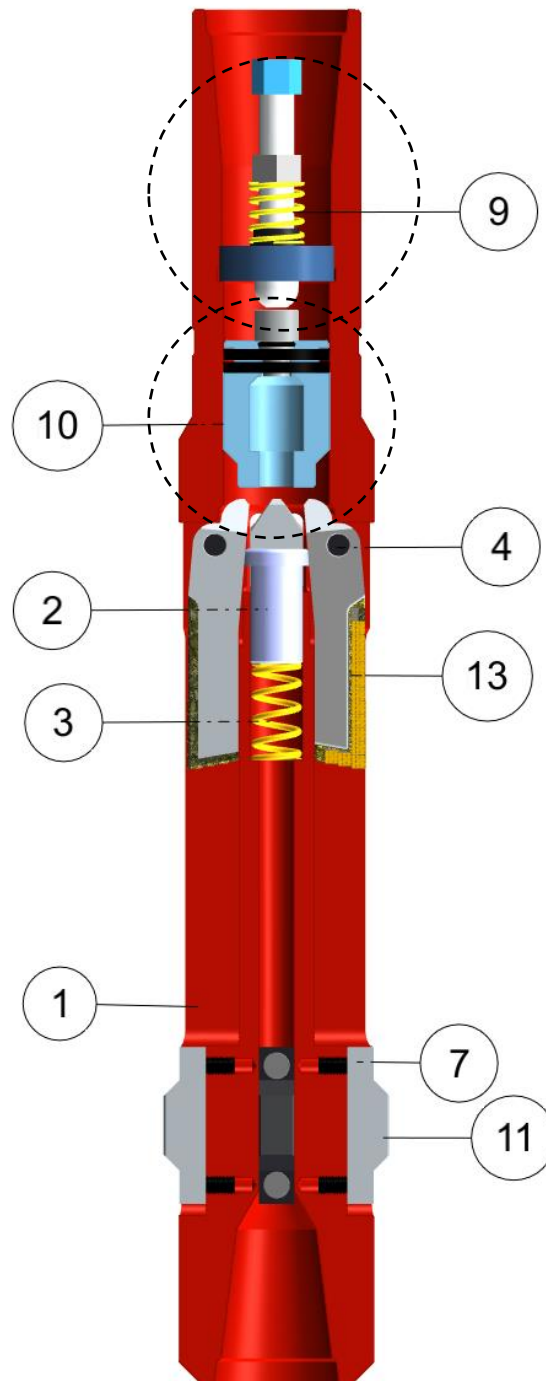
5.50" OD M24 Casing Cutter



Item 9 - Indicator Assembly



Item 10 - Piston Assembly



**5.50" OD M24 Base Assembly
Dressed w/ Knives**

	93 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

1B1B5.50" OD M24 CASING CUTTER

Parts List - 00114754 - Assembly, CSG Cutter, 05.50 OD M24

Base Assembly

Item #	Part #	Qty.	Description
1	00109044	1	Casing cutter body
2	00109046	1	Knife rest bushing
3	00103826	1	Compression spring
4	00109047	3	Knife pin
5	00109067	1	Knife locking pin
6	00100123	1	Screw, SHC, modified
7	00104122	8	Socket head screw, .50-13UNC x 1.00-in.
8	00109530	1	Sub, Top

Indicator Assembly

Item #	Part #	Qty.	Description
9	--	1	Indicator assembly
9a	00109053	1	Cap, retainer
9b	00765144	1	O-ring seal, 70 Duro, 0.139-in. x 0.796-in. x 1.074-in.
9c	00109055	2	Nut, hex, jam, 1.00-14 UNF
9d	00109052	1	Stem, Indicator, .50 ID
9e	00103826	1	Spring, compression, 1-5/16 OD 00.093 wire
9f	00109338	1	Sleeve, flanged, indicator
9g	00109045	1	Spider, indicator
9h	00104425	1	Orifice, .313 ID (See Nozzle option chart for additional sizes)

Piston Assembly

Item #	Part #	Qty.	Description
10	--	1	Piston Assembly
10a	00109065	1	Casing cutter piston
10b	00109054	1	Bushing, indicator, .625 ID
10c	00104118	2	Packing seal
10d	00102804	1	O-ring, Nitrile 70 Duro

	94 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

5.50" OD M24 CASING CUTTER

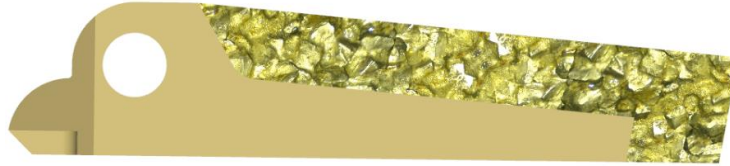
Accessory Parts			
Stabilizer Pads			
Item #	Part #	Qty.	Description
11	00109056	4	Pad, stabilizer, 07.00 casing,
	00109048	4	Pad, stabilizer, 07.63 casing,
	00109068	4	Pad, stabilizer, 08.63 casing,
Bull Nose Sub			
Item #	Part #	Qty.	Description
12	00109335	1	Sub, bull nose

NOTE: Accessory parts are not included in the cutter assembly and must be ordered separately.

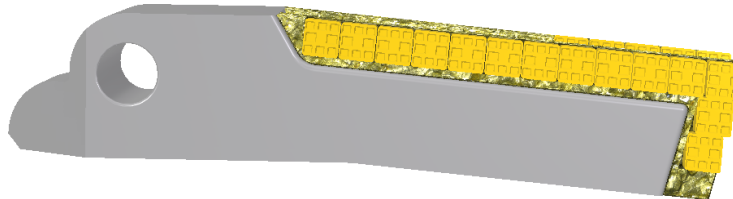
	95 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

5.50" OD M24 CASING CUTTER

5.50 OD Cutter Knife Selection Chart



Crushed Carbide Type							
Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	00109507	00114760	7.00	--	4	2.3	8.1
	00109508	00114761	7.63	--	4	3.1	9.7
	00109509	00114762	8.63	--	4	3.5	10.5
	00109510	00114763	9.63	--	4	4.4	12.2
	00109511	00114764	10.75	9.63	4	5.3	14.0
	00109512	00114765	13.38	10.75	4	6.4	16.2
	00109513	00114766	16.00	13.38	4	9.0	21.5
	00109514	01297442	20.00	--	4	13.9	31.23



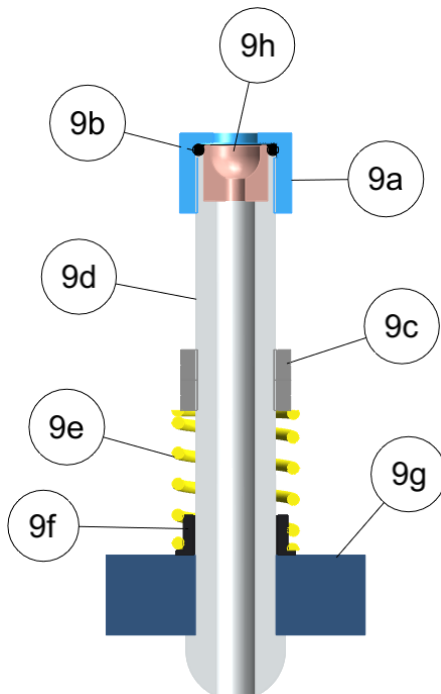
Insert Type Knives – High performance							
Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	02883147	02883155	7.00	--	4	2.3	8.1
	02883148	02883156	7.63	--	4	3.1	9.7
	02883149	02883157	8.63	--	4	3.5	10.5
	02883150	02883158	9.63	8.63	4	4.4	12.2
	02883151	02883159	10.75	9.63	4	5.3	14.0
	02883152	02883160	13.38	10.75	4	6.4	16.2
	02883153	02883161	16.00	13.38	4	9.0	21.5
	02883154	02883162	20.00	--	4	13.9	31.2

NOTE: Knives are not included in the cutter assembly and must be ordered separately

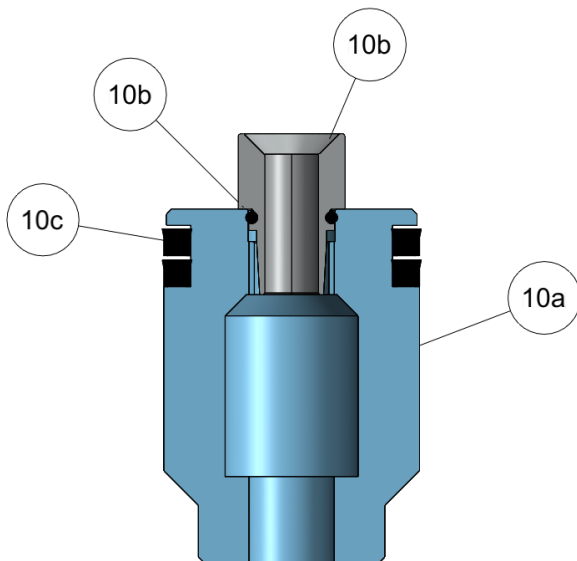
	96 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter				
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse

7.6

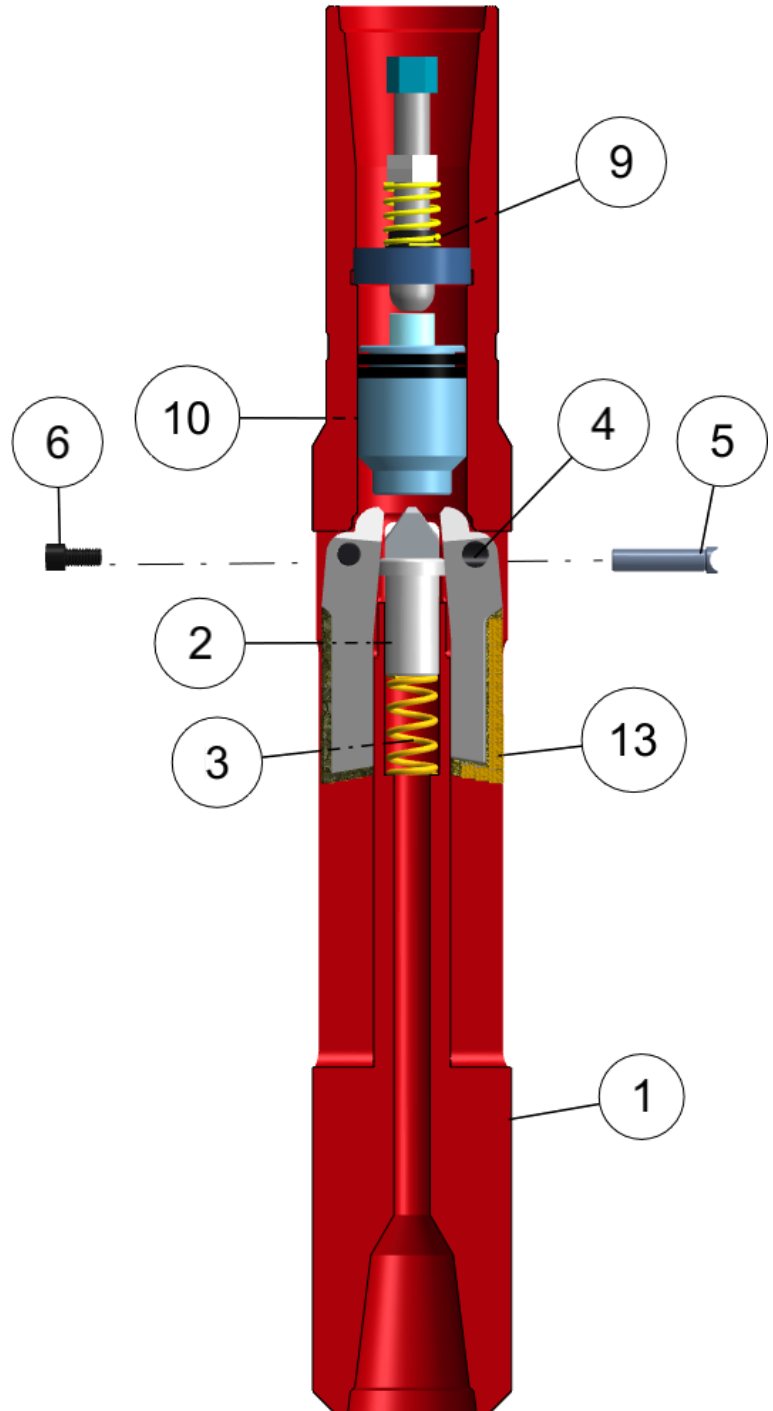
7.25" OD M24 CASING CUTTER



Item 9 - Indicator Assembly



Item 10 - Piston Assembly



7.25" OD M24 Cutter Assembly
Dressed w/ Knives

	97 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter				OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse

7.25" OD M24 CASING CUTTER

Parts List - 115698 - Assembly, CSG Cutter, 07.25 OD, A-1 M24			
Base Assembly			
Item #	Part #	Qty.	Description
1	00113026	1	Casing cutter body
2	00113043	1	Knife rest bushing
3	00103430	1	Compression spring
4	00113044	3	Knife pin
5	00113045	1	Knife locking pin
6	00103433	1	Screw, SHC, modified
7	--	--	--
8	00113046	1	Top sub
Indicator Assembly			
Item #	Part #	Qty.	Description
9	00115697	1	Indicator assembly
9a	00114038	1	Cap, retainer
9b	00765093	1	O-ring seal, 70 Duro, 0.139-in. x 0.796-in
9c	00114037	2	Nut, hex, jam, 1.00-14 UNF
9d	00114040	1	Stem, Indicator, .63 ID
9e	00103818	1	Spring, compression, 1-5/16 OD 00.093 wire
9f	00114046	1	Sleeve, flanged, indicator
9g	00113039	1	Spider, indicator
9h	00104438	1	Orifice, .375 ID (See Nozzle option chart for additional sizes)
Piston Assembly			
Item #	Part #	Qty.	Description
10	--	1	Piston Assembly
10a	00113042	1	Casing cutter piston
10b	00113040	1	Bushing, indicator, .750 ID
10c	00103432	1	Seal, piston assy, Mission
10d	00765152	1	O-ring, Nitrile 70 Duro

	98 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

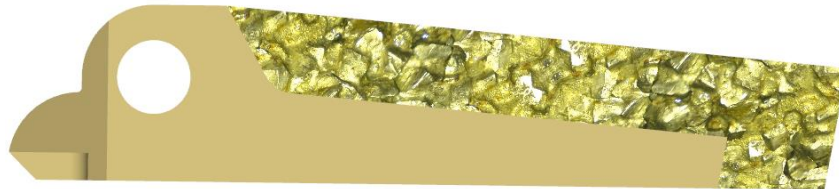
Accessory Parts

Bull Nose Sub

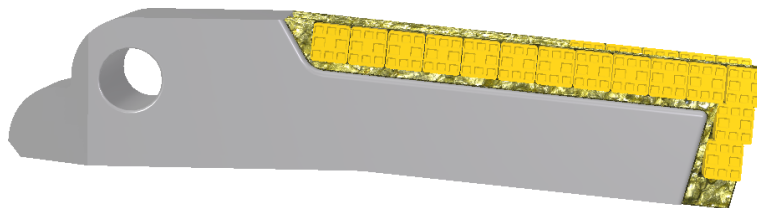
Item #	Part #	Qty.	Description
12	00113047	1	Sub, bull nose

NOTE: Accessory parts are not included in the cutter assembly and must be ordered separately.

7.25 OD Cutter Knife Selection Chart



Crushed Carbide Type							
Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	00113031	00113035	8.63 or 9.63	-	4	3.1	11.0
	00113032	00113036	13.38	11.75	4	5.2	15.1
	00113033	00113037	20.0	13.38	4	8.7	22.1
	00113034	00113038	36.0	20.00	4	17.1	39.0



Insert Type Knives – High performance							
Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	02882656	02882660	8.63 or 9.63	--	4	3.1	11.0
	02882657	02882661	13.38	11.75	4	5.2	15.1
	02882658	02882662	20.0	13.38	4	8.7	22.1
	02882659	02882663	36.0	20.00	4	17.1	39.0

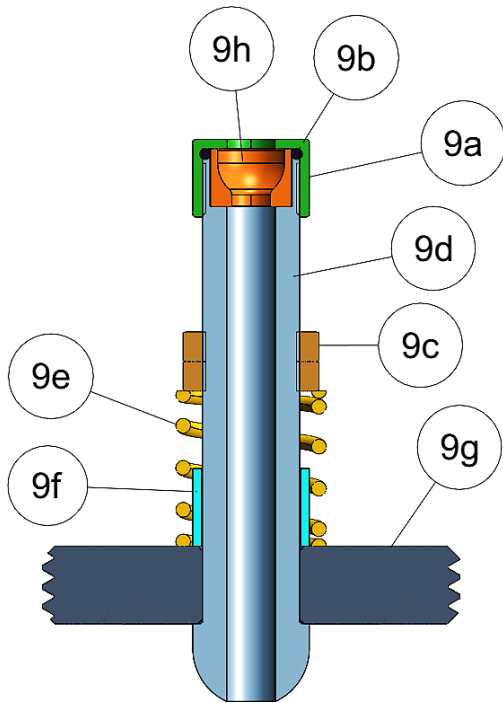
NOTE: Knives are not included in the cutter assembly and must be ordered separately

© 2021 Weatherford All Rights Reserved Proprietary and Confidential. This document is copyrighted and contains valuable proprietary and confidential information, whether patentable or unpatentable, of Weatherford. Recipients agree the document is loaned with confidential restrictions, and with the understanding that neither it nor the information contained therein will be reproduced, used or disclosed in whole or in part for any purpose except as may be specifically authorized in writing by Weatherford.

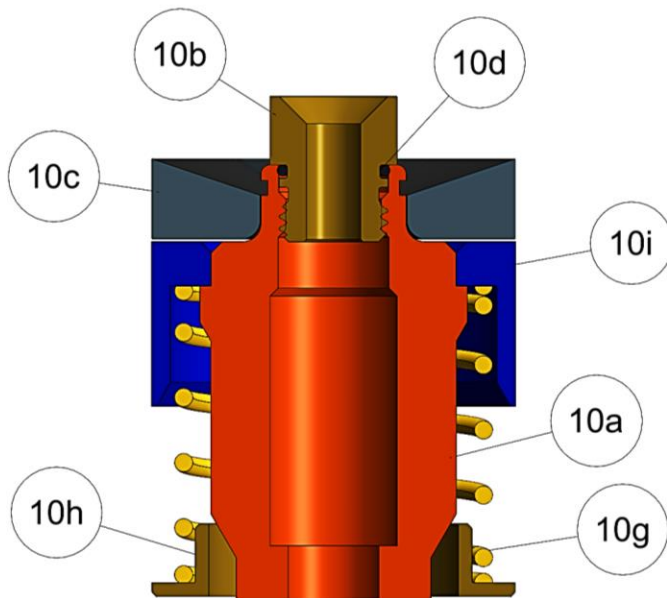
	99 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

7.7

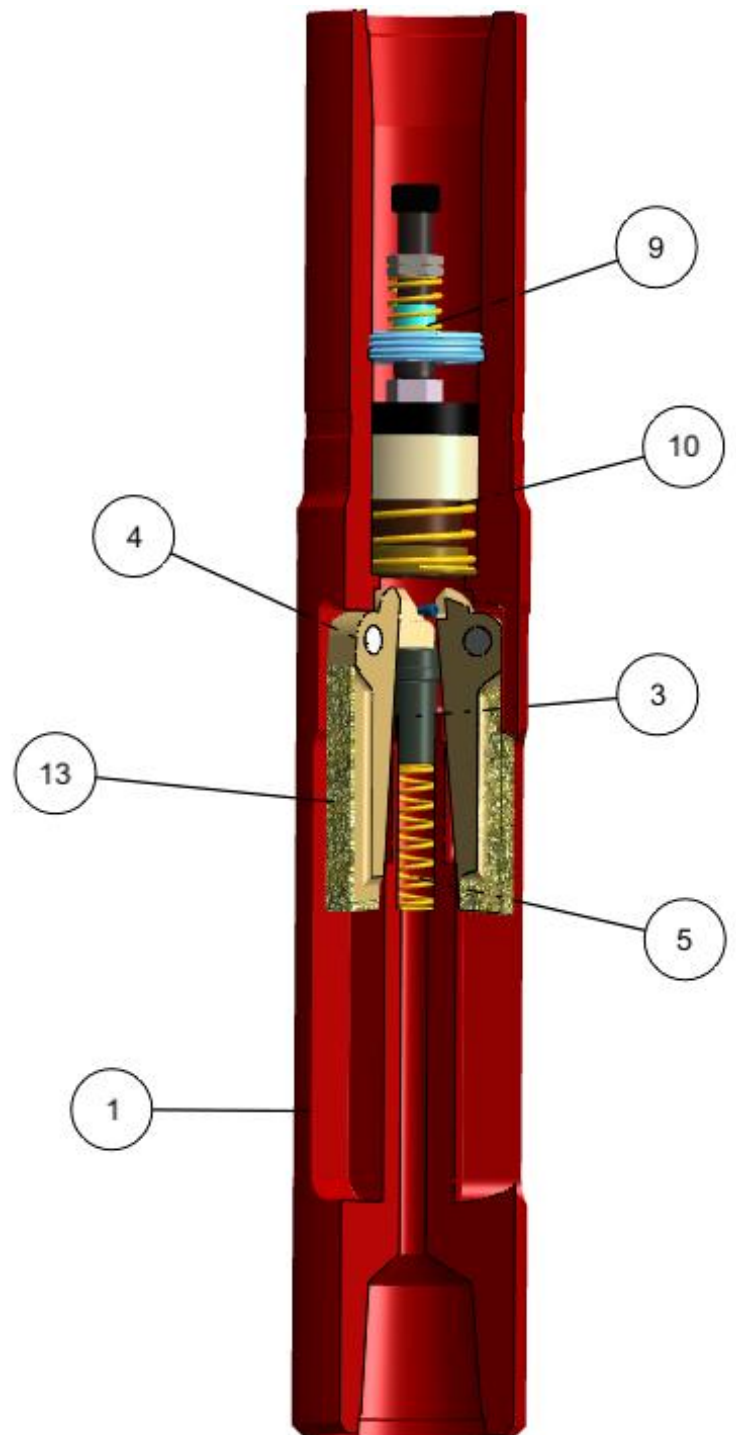
8.25" OD M23 CASING CUTTER



Item 9 - Indicator Assembly



Item 10 - Piston Assembly



**8.25 OD M23 Base Assembly
Dressed w/ Knives**

© 2021 Weatherford All Rights Reserved Proprietary and Confidential. This document is copyrighted and contains valuable proprietary and confidential information, whether patentable or unpatentable, of Weatherford. Recipients agree the document is loaned with confidential restrictions, and with the understanding that neither it nor the information contained therein will be reproduced, used or disclosed in whole or in part for any purpose except as may be specifically authorized in writing by Weatherford.

	100 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

8.25" OD M23 CASING CUTTER

Parts List: 00115983 - Assembly, CSG cutter, 08.25 OD, A-1 M23

Base Assembly

Item #	Part #	Qty.	Description
1	00114063	1	Casing cutter body
2	00114042	1	Knife rest bushing
3	00103819	1	Spring, compression, knife rest bushing
4	00114809	3	Assembly, knife pin
5	00114043	1	Knife pin retainer key
6	00104107	3	SHC screw, 5/16-in.-18UNC-2A x 0.38-in. long
7	--	--	--
8	00111333	1	Sub, Top, 4 1/2-in. IF Box Up

Indicator Assembly

Item #	Part #	Qty.	Description
9	00114745	1	Indicator assembly, .375 ID
9a	00114038	1	Cap, retainer
9b	00765093	1	O-ring -214 WE105 (NBR 70 standard)
9c	00114037	2	Nut, hex, jam, .875-14 UNF
9d	00114040	1	Stem, Indicator, .63 ID
9e	00103818	1	Spring, compression
9f	00114046	1	Sleeve, indicator
9g	00114044	1	Spider, indicator
9h	00104438	1	Orifice, 6340-12/32, .375 ID

Piston Assembly

Item #	Part #	Qty.	Description
10	00114746	1	Piston Assembly
10a	00109065	1	Casing cutter piston
10b	00114032	1	Bushing, indicator, .750 ID*
10c	00104110	1	Seal, packing S-5-A, 2.00 Bore (015100183)
10d	00102825	1	O-ring -218 WE105 (Nitrile 70 Duro)
10g	00103773	1	Spring, compression, 8-1/4 OD casing
10h	00114045	1	Guide, spring
10i	00114073	1	Skirt, piston

	101 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

8.25" OD M23 CASING CUTTER

Accessory Parts

Bull Nose Sub

Item #	Part #	Qty.	Description
12	00109173	1	Sub, bull nose
	00115365		Sub, bull nose, rubber

NOTE: Accessory parts are not included in the cutter assembly and must be ordered separately.

Optional Parts

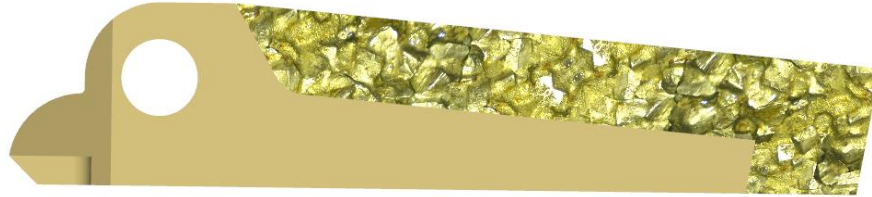
Top Sub

Item #	Part #	Qty.	Description
8	00112356	1	Sub, top, ext. FN, NC50 Box Up*

	102 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter				
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse

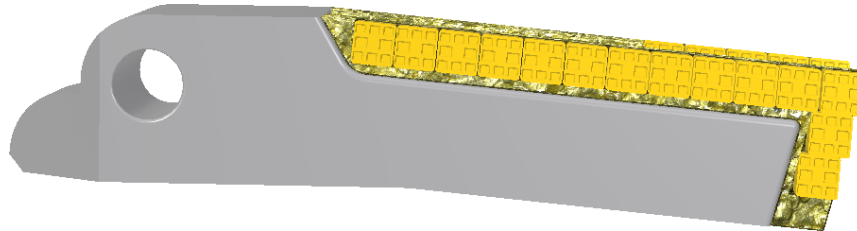
8.25" OD M23 CASING CUTTER

8.25 OD Cutter Knife Selection Chart



Crushed Carbide Type

Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	00109515	00114068	9.63 or 10.75	--	3	3.7	12.2
	00109516	00114069	11.75 or 13.38	--	3	5.4	15.6
	00114899	00115969	16.00	13.38	3	7.9	20.5
	00109517	00114070	20.00	16.00	3	9.6	24.0
	00114900	00115969	24.00 or 26.00	18.63	3	12.1	29.0
	00109518	00114071	30.00	20.00	3	14.1	33.0
	00109519	00114072	33.00 or 36.00	26.00	3	18.2	41.0



Insert Type Knives – High performance

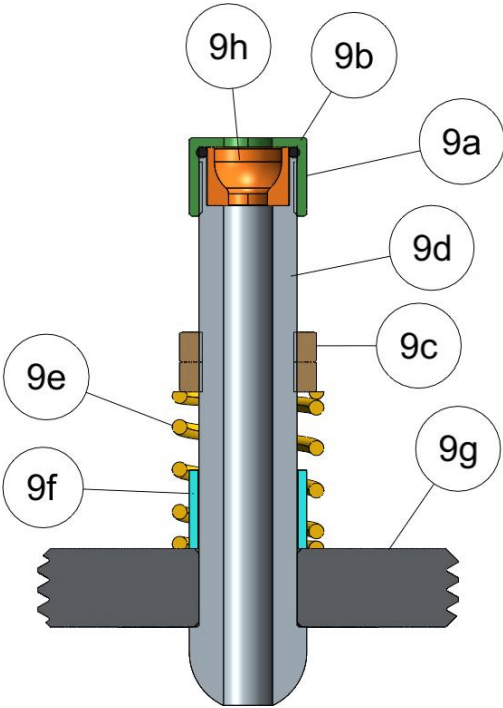
Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	02847588	02847605	9.63 or 10.75	--	3	3.7	12.2
	02847589	02847606	11.75 or 13.38	--	3	5.4	15.6
	02847590	02847607	16.00	13.38	3	7.9	20.5
	02847591	02847608	20.00	16.00	3	9.6	24.0
	02847592	02847609	24.00 or 26.00	18.63	3	12.1	29.0
	02847593	02847610	30.00	20.00	3	14.1	33.0
	02847594	02847611	33.00 or 36.00	26.00	3	18.2	41.0

NOTE: Knives are not included in the cutter assembly and must be ordered separately

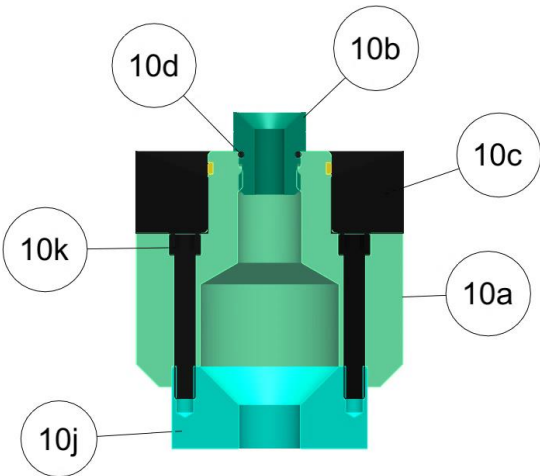
	103 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter				
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse

7.8

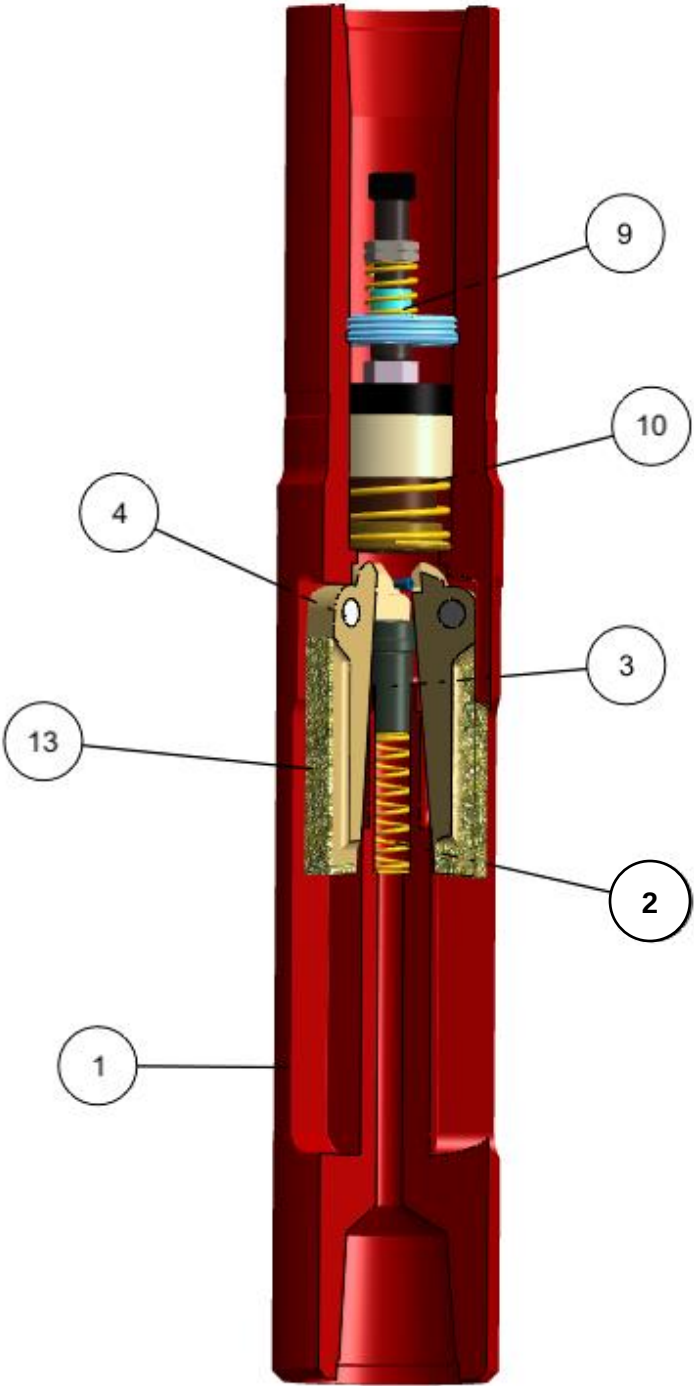
9.5” OD M23 CASING CUTTER



Item 9 - Indicator Assembly



Item 10 - Piston Assembly



9.50” OD M23 Casing Cutter Assembly
Dressed w/ Knives

	104 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

9.5" OD M23 CASING CUTTER

Parts List - 00115981 - Assembly, CSG cutter, 09.50 OD, A-1 M23

Base Assembly

Item #	Part #	Qty.	Description
1	00114064	1	Casing cutter body
2	00114036	1	Knife rest bushing
3	00103817	1	Spring, compression, knife rest bushing
4	00115964	3	Pin, knife assembly
5	00114043	1	Knife pin retainer key
6	00101407	3	SHC screw, 5/16-in.-18UNC-2A x 0.38-in. long
7	-	-	-
8	00111333	1	Sub, Top, NC 50 Box Up

Indicator Assembly

Item #	Part #	Qty.	Description
9	00114747	1	Indicator assembly, .375 ID
9a	00114038	1	Cap, retainer
9b	00765093	1	O-ring -214 WE105 (NBR 70 standard)
9c	00114037	2	Nut, hex, jam, .875-14 UNF
9d	00114040	1	Stem, Indicator, .63 ID
9e	00103818	1	Spring, compression
9f	00114046	1	Sleeve, indicator
9g	00114035	1	Spider, indicator
9h	00104438	1	Orifice, 6340-12/32, .375 ID

Piston Assembly

Item #	Part #	Qty.	Description
10	00114749	1	Piston Assembly, CSG cutter, 9.50 OD, .750 ID
10a	00114131	1	Casing cutter piston
10d	00114032	1	Bushing, indicator, .750 ID*
10e	00765097	1	O-ring -218 WE105 (Nitrile 70 Duro)
10f	00104109	.5	Seal, packing
10j	00114132	1	Ring, piston, bottom
10k	00104113	4	Screw, socket .310 DIA, 18 UNC, 3.250 LG IN

	105 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

9.5" OD M23 CASING CUTTER

Accessory Parts

Bull Nose Sub

Item #	Part #	Qty.	Description
12	00109173	1	Sub, bull nose

NOTE: *Accessory parts are not included in the cutter assembly and must be ordered separately.*

Optional Parts

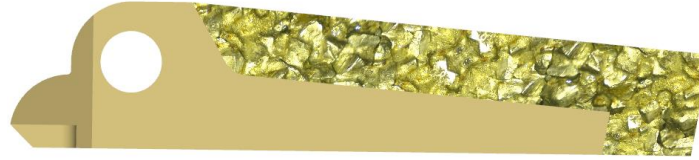
Top Sub

Item #	Part #	Qty.	Description
8	00111333	1	Sub, top, ext. FN, NC 50 IF Box Up

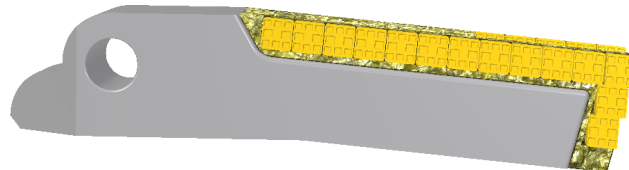
	106 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

9.5" OD M23 CASING CUTTER

9.5" OD Cutter Knife Selection Chart



Crushed Carbide Type							
Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	00114901	00115975	10.75	--	3	3.7	13.2
	00114902	00115976	13.375	--	3	4.8	15.4
	00114903	00115982	16.00	13.375	3	6.5	18.8
	00114904	00115980	20.00	16.00	3	8.7	23.3
	00109521	00114127	20.00	16.00	3	10.7	27.3
	00114905	00115977	26.00	18.00	3	12.5	30.8
	00114906	00115979	30.00	20.00	3	14.4	34.7
	00114907	00115978	36.00	24.00	3	16.4	38.6
	00109522	00114128	42.00	26.00	3	18.4	42.6
	00114908	00115974	48.00	30.00	3	22.5	50.7
	00114909	00115973	52.00	33.00	3	25.4	56.6



Insert Type Knives – High performance							
Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	02867102	02867103	10.75	--	3	3.7	13.2
	02867100	02867101	13.3	--	3	4.8	15.4
	02867118	02867113	16.00	-	3	6.5	18.8
	02867117	02867116	20.00	16.00	3	8.7	23.3
	02867115	02867114	20.00	16.00	3	10.7	27.3
	02867156	02867155	26.00	18.00	3	12.5	30.8
	02867145	02867152	30.00	20.00	3	14.4	34.8
	02867141	02867151	36.00	24.00	3	16.4	38.6
	02867146	02867148	42.00	26.00	3	18.4	42.6
	02867147	02867149	48.00	30.00	3	22.5	50.8
	02867144	02867150	52.00	33.00	3	25.4	56.6

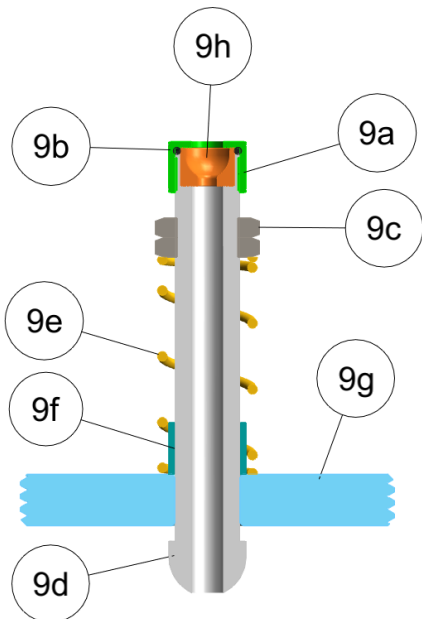
NOTE: Knives are not included in the cutter assembly and must be ordered separately

© 2021 Weatherford All Rights Reserved Proprietary and Confidential. This document is copyrighted and contains valuable proprietary and confidential information, whether patentable or unpatentable, of Weatherford. Recipients agree the document is loaned with confidential restrictions, and with the understanding that neither it nor the information contained therein will be reproduced, used or disclosed in whole or in part for any purpose except as may be specifically authorized in writing by Weatherford.

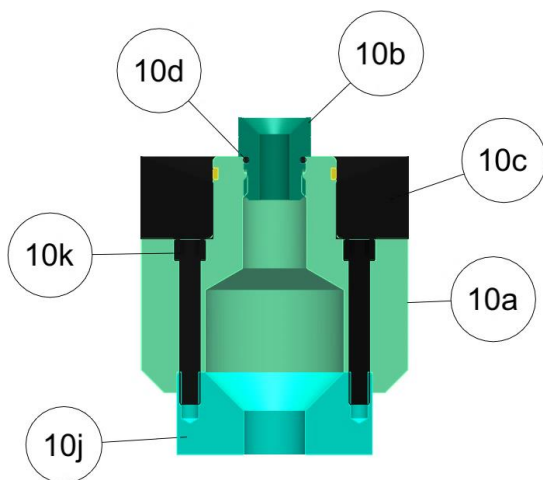
	107 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter				
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse

7.9

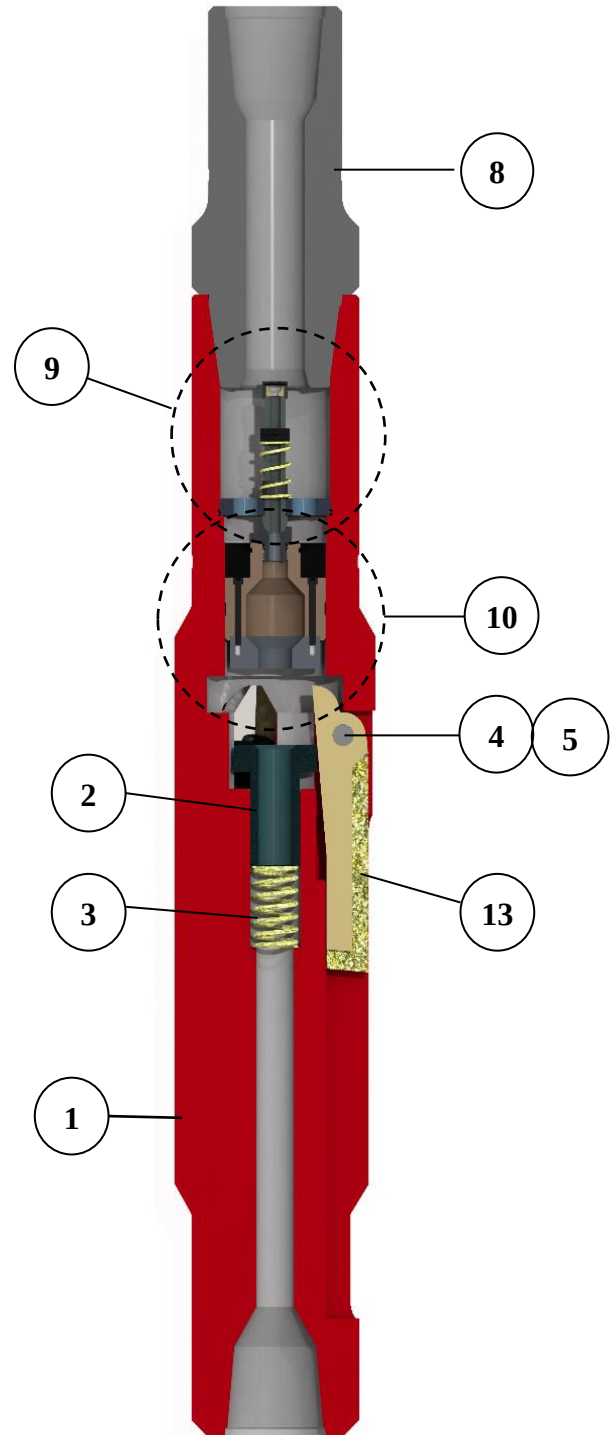
12.00" OD M23 CASING CUTTER



Item 9 - Indicator Assembly



Item 10 - Piston Assembly



12" OD M23 Base Assembly
Dressed w/ Knives

	108 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

12.00" OD M23 CASING CUTTER

Parts List – 00114812, Cutter, INT HYD, A-1 12.0 OD M23

Base Assembly

Item #	Part #	Qty.	Description
1	00114066	1	Casing cutter body
2	00114029	1	Knife rest bushing
3	00103816	1	Spring, compression, knife rest bushing
4	00114810	3	Pin, knife assembly
5	00114034	3	Knife pin retainer key
6	00104107	3	SHC screw, 5/16-in.-18UNC-2A x 0.38-in. long
7	--	--	--
8	00114028	1	Sub, Top

Indicator Assembly

Item #	Part #	Qty.	Description
9	00104751	1	Indicator assembly
9a	00114038	1	Cap, retainer
9b	00765093	1	O-ring -214 WE105 (NBR 70 standard)
9c	00114037	2	Nut, hex, jam, .875-14 UNF
9d	00114031	1	Stem, Indicator, .750 ID
9e	00103818	1	Spring, compression, 1-5/16 OD 00.093 wire
9f	00114046	1	Sleeve, indicator
9g	00114030	1	Spider, indicator
9h	00104438	1	Orifice, 6340-12/32, .375 ID, 1.045 OD x .750 LG

Piston Assembly

Part #	Qty.	Description
10	00104751	Piston Assembly
10a	00114129	Casing cutter piston
10b	00114032	Bushing, indicator, .750 ID
10c	00104106	Seal, piston assy, Mission 6B
10d	00765097	O-ring-218 Nitrile 70 Duro
10e	00114130	Ring, piston, bottom, 12.0" OD CSG cutter
10f	00104114	Screw, socket .375 DIA 16 UNC 3.500 LG IN steel

	109 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

12.00" OD M23 CASING CUTTER

Accessory Parts

Bull Nose Sub

Item #	Part #	Qty.	Description
12	00109173	1	Sub, bull nose

NOTE: Accessory parts are not included in the cutter assembly and must be ordered separately.

Optional Parts

Piston Assembly (For use with Mud Motor) *

Item #	Part #	Qty.	Description
10	00114779	1	Assembly, piston, A-1 12 OD M24 CC, 00.690 ID MUDMOTOR
	00114778	1	Assembly, piston, A-1 12 OD M24 CC, 00.940 ID MUDMOTOR

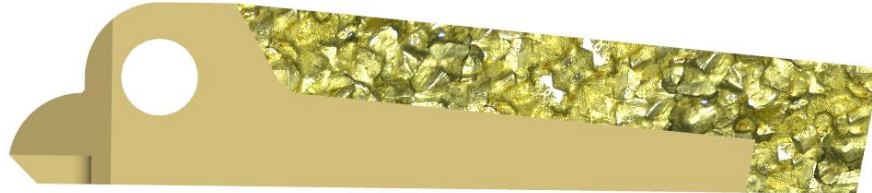
Top Sub

Item #	Part #	Qty.	Description
8	00114028	1	Sub, top, 6.63 API REG box

	110 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

12.00" OD M23 CASING CUTTER

12.00 OD M23 Cutter Knife Selection Chart



Crushed Carbide Type

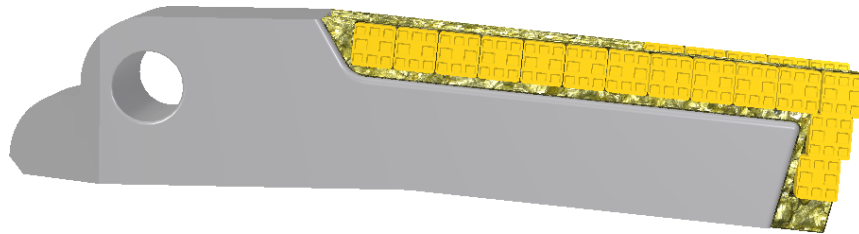
Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	00112465	00112489	13.38	--	3	4.0	16.1
	00112466	00112490	13.38 or 16.00	13.38	3	5.1	18.3
	00109505	00112491	13.38 or 18.00	16.00	3	6.0	20.2
	00112467	00112492	20.00	18.00	3	7.5	23.2
	00112468	00115337	20.00	18.63	3	9.3	26.8
	00115336	00112493	24.00 or 26.00	20.00	3	10.6	29.3
	00112469	00112494	30.00 or 33.00	24.00	3	13.7	35.6
	00112470	00112495	36.00	26.00	3	15.7	39.6
	00112471	00112496	42.00	30.00	3	19.7	47.6
	00112472	00112497	48.00	33.00	3	22.8	53.6
	00112473	00112498	52.00	36.00	3	26.0	60.1
	00112474	00112499	60.00	--	3	28.5	65.1
	00112475	00112500	72.0	--	3	34.5	76.1

NOTE: Knives are not included in the cutter assembly and must be ordered separately

	111 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

12.00" OD M23 CASING CUTTER

12.00 OD M23 Cutter Knife Selection Chart

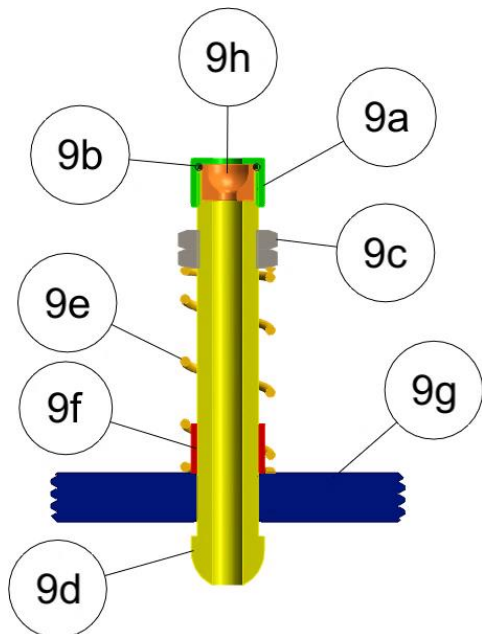


Insert Type Knives – High performance							
Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	02847171	02847186	13.38	--	3	4.0	16.1
	02847172	02847187	16.00 or 18.00	--	3	5.1	18.3
	02847173	02847188	13.38 or 18.00	--	3	6.0	20.2
	02847174	02847189	20.00	--	3	7.5	23.2
	02847175	02847190	20.00	18.63	3	9.3	26.8
	02847176	02847191	24.00 or 26.00	20.00	3	10.6	29.3
	02847177	02847192	30.00 or 33.00	24.00	3	13.7	35.6
	02847178	02847193	36.00	26.00	3	15.7	39.6
	02847179	02847194	42.00	30.00	3	19.7	47.6
	02847180	02847195	48.00	33.00	3	22.8	53.6
	02847181	02847196	52.00	36.00	3	26.0	60.1
	02847182	02847197	60.00	--	3	28.5	65.1

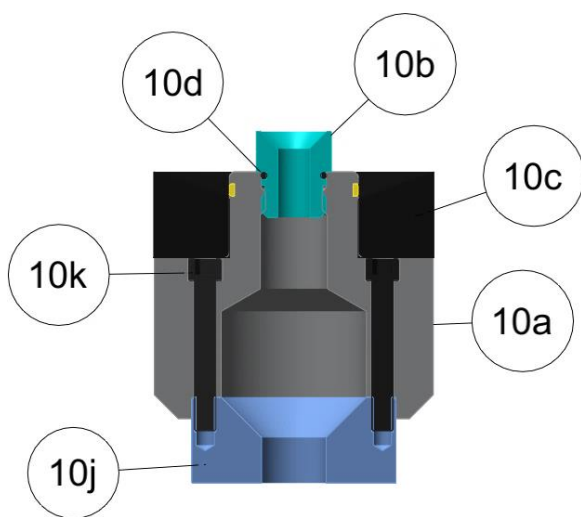
	112 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter				
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse

7.10

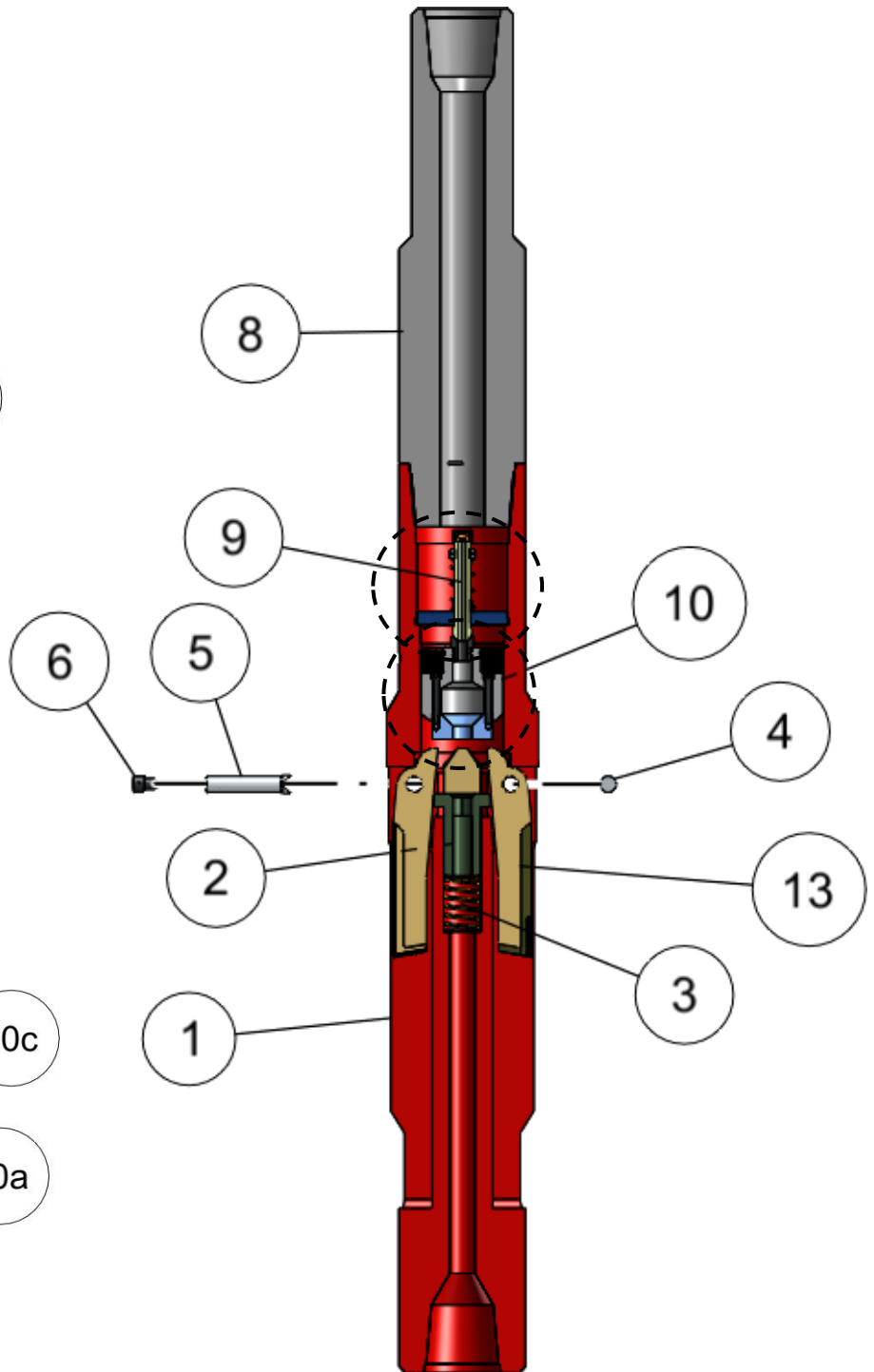
12.00" OD M24 CASING CUTTER



Item 9 - Indicator Assembly



Item 10 - Piston Assembly



12" OD M24 Base Assembly
Dressed w/ Knives

	113 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

12.00" OD M24 CASING CUTTER

Parts List – 00114816, Assy, base, CSG Cutter, INT HYD, A-1 12 OD M24

Base Assembly

Item #	Part #	Qty.	Description
1	00109129	1	Body, casing cutter, INT HYD, A-1 M24, 12.00 OD
2	00109135	1	Bushing, knife rest, CSG cutter, A-1 M24 12.00 OD
3	00103816	1	Spring, compression, casing cutter, 12.00 OD m23 and M24
4	00109133	3	Knife pin, casing cutter, 12.00 OD M24
5	00109134	1	Knife locking pin, casing cutter, 12.00 OD M 24
6	00100125	1	SHC screw, .875-14 UNC x .875 LG, modified
7	--	--	--
8	00109136	1	Sub, Top

Indicator Assembly

Item #	Part #	Qty.	Description
9	00114780	1	Indicator assembly
9a	00114038	1	Cap, retainer
9b	00765093	1	O-ring -214 WE105 (NBR 70 standard)
9c	00114037	2	Nut, hex jam, 1.250-12 UNF-2B, stainless steel
9d	00114031	1	Stem, Indicator
9e	00103818	1	Spring, compression, 1-5/16 OD 00.093 wire
9f	00114046	1	Sleeve, indicator
9g	00109132	1	Spider, indicator
9h	00104438	1	Orifice, 6340-12/32, .375 ID, 1.045 OD x .750 LG

Piston Assembly

Part #	Qty.	Description
10	00114177	Piston Assembly
10a	00109130	Casing cutter piston
10b	00114032	Bushing, indicator, .750 ID
10c	00104151	Rubber, piston replacement 6.500 Supreme Series B
10d	00765097	O-ring-218 Nitrile 70 Duro
10k	00104166	Screw, socket .500-13 UNC 3.500 LG IN steel
10j	00109131	Ring, piston, bottom, 12.0" OD CSG cutter

	114 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

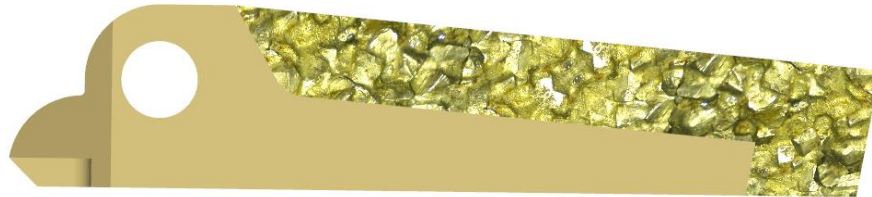
12.00" OD M24 CASING CUTTER

Accessory Parts

Bull Nose Sub			
Item #	Part #	Qty.	Description
12	00109173	1	Sub, bull nose

NOTE: Accessory parts are not included in the cutter assembly and must be ordered separately.

12.00 OD M24 Cutter Knife Selection Chart



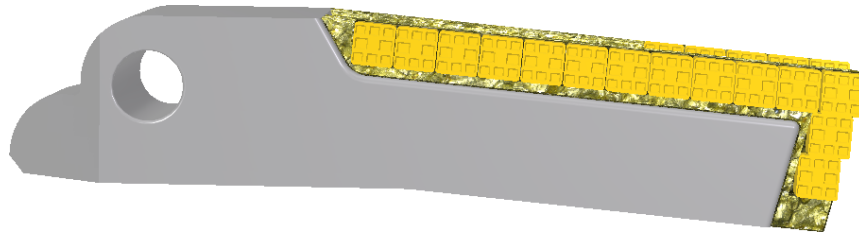
Crushed Carbide Type							
Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	00112465	00112489	13.38	--	4	4.0	15.6
	00112466	00112490	16.00 or 18.00	13.38	4	5.1	17.7
	00109505	00112491	13.38 or 18.00	16.00	4	6.0	19.7
	00112467	00112492	20.00	18.00	4	7.5	22.6
	00112468	00115337	20.00	18.63	4	9.3	26.3
	00115336	00112493	24.00 or 26.00	20.00	4	10.6	28.8
	00112469	00112494	30.00 or 33.00	24.00	4	13.7	35.1
	00112470	00112495	36.00	26.00	4	15.7	39.1
	00112471	00112496	42.00	30.00	4	19.7	47.1
	00112472	00112497	48.00	33.00	4	22.8	53.1
	00112473	00112498	52.00	36.00	4	26.0	59.6
	00112474	00112499	60.00	--	4	28.5	64.6

NOTE: Knives are not included in the cutter assembly and must be ordered separately

	115 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

12.00" OD M24 CASING CUTTER

12.00 OD M24 Cutter Knife Selection Chart



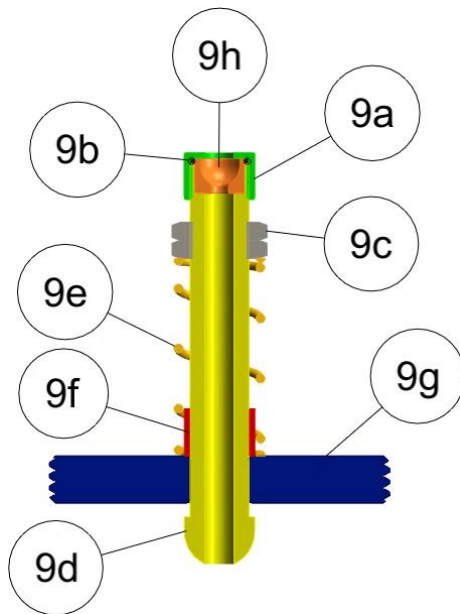
Insert Type Knives – High performance							
Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	02847171	02847186	13.38	--	4	4.0	15.6
	02847172	02847187	16.00 or 18.00	--	4	5.1	17.7
	02847173	02847188	13.38 or 18.00	--	4	6.0	19.7
	02847174	02847189	20.00	--	4	7.5	22.6
	02847175	02847190	20.00	18.63	4	9.3	26.3
	02847176	02847191	24.00 or 26.00	20.00	4	10.6	28.8
	02847177	02847192	30.00 or 33.00	24.00	4	13.7	35.1
	02847178	02847193	36.00	26.00	4	15.7	39.1
	02847179	02847194	42.00	30.00	4	19.7	47.1
	02847180	02847195	48.00	33.00	4	22.8	53.1
	02847181	02847196	52.00	36.00	4	26.0	59.6
	02847182	02847197	60.00	--	4	28.5	64.6

NOTE: Knives are not included in the cutter assembly and must be ordered separately

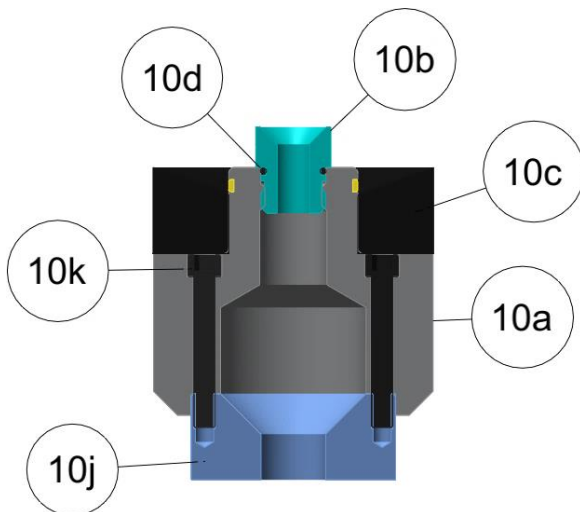
	116 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter				
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse

7.11

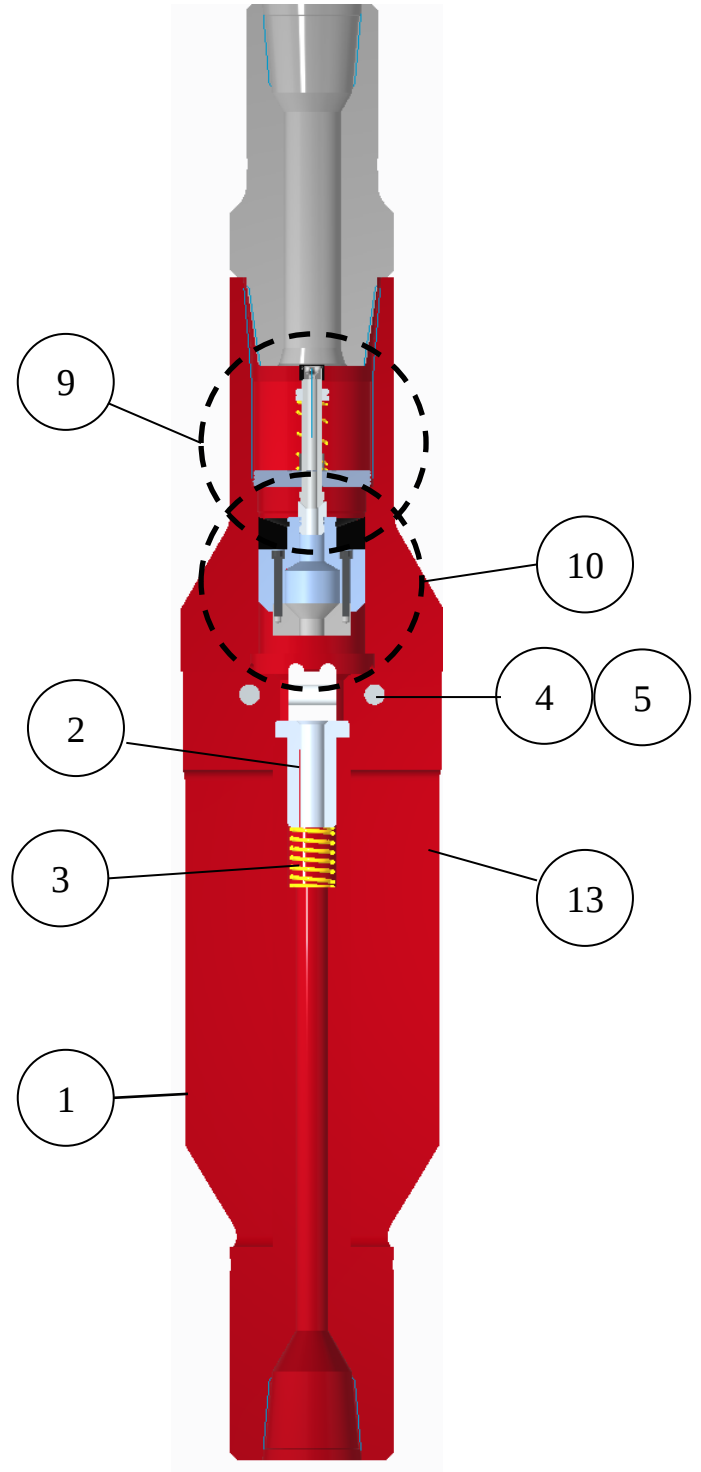
17.00" OD M24 HD CASING CUTTER



Item 9 - Indicator Assembly



Item 10 - Piston Assembly



17.0" OD M24 Base Assembly

	117 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

17.00" OD M24 CASING CUTTER

Parts List: 02856698 - ASSY, A-1 CSG cutter, INT HYD, 17.00 OD, M24

Base Assembly

Item #	Part #	Qty.	Description
1	02856700	1	Body, A-1 CSG cutter, INT HYD, 17.00 OD, M24
2	00109135	1	Bushing, knife rest, CSG cutter, A-1 M24 12.00 OD
3	00103816	1	Spring, compression, casing cutter, 12.00 OD m23 and M24
4	00109133	3	Knife pin, casing cutter, 12.00 OD M24
5	00109134	1	Knife locking pin, casing cutter, 12.00 OD M 24
6	00100125	1	SHC screw, .875-14 UNC x .875 LG, modified
7	--	--	--
8	00109136	1	Sub, Top

Indicator Assembly

Item #	Part #	Qty.	Description
9	00114780	1	Indicator assembly
9a	00114038	1	Cap, retainer
9b	00765093	1	O-ring -214 WE105 (NBR 70 standard)
9c	00114037	2	Nut, hex jam, 1.250-12 UNF-2B, stainless steel
9d	00114031	1	Stem, Indicator
9e	00103818	1	Spring, compression, 1-5/16 OD 00.093 wire
9f	00114046	1	Sleeve, indicator
9g	00109132	1	Spider, indicator
9h	00104438	1	Orifice, 6340-12/32 0.375 ID 1.045 OD X 0.750 LG

Piston Assembly

Item #	Part #	Qty.	Description
10	00114177	1	Piston Assembly
10a	00109130	1	Casing cutter piston
10b	00114032	1	Bushing, indicator, .750 ID
10c	00104151	1	Rubber, piston replacement 6.500 Supreme Series B
10d	00765097	1	O-ring-218 Nitrile 70 Duro
10k	00104166	4	Screw, socket .500-13 UNC 3.500 LG IN steel
10j	00109131	1	Ring, piston, bottom, 12.0" OD CSG cutter

	118 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

17.00" OD M24 CASING CUTTER

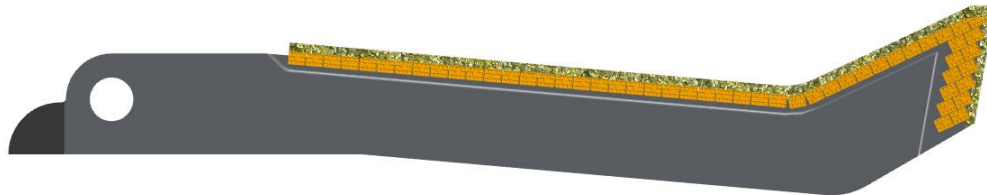
Accessory Bill of Materials

Bull Nose Sub

Item #	Part #	Qty.	Description
12	00109174	1	Sub, bull nose

NOTE: Accessory parts are not included in the cutter assembly and must be ordered separately.

17.00 OD M24 Cutter Knife Selection Chart

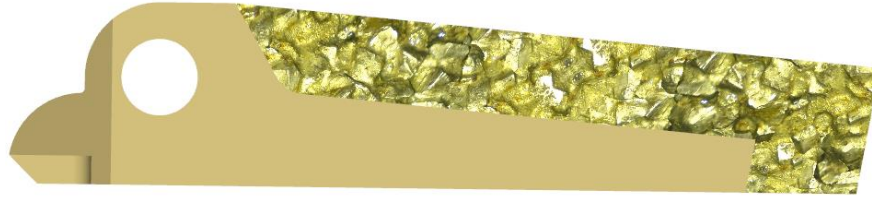


High-Angle Insert Type Knives – High performance

Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	02650641	02813989	36.0	24.0	4	16.5	40.0
	02607593	02813991	42.0	36.0	4	21.3	50.0
	02607420	02809357	48.0	48.0	4	25.6	59.3

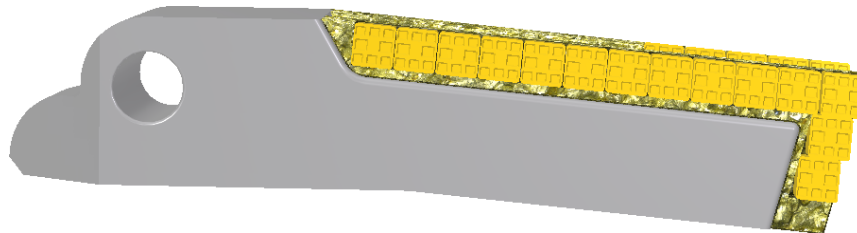
	119 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

17.00 OD M24 Cutter Knife Selection Chart



Crushed Carbide Type							
Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	00112467	00112492	20.00	18.00	4	7.5	22.6
	00112468	00115337	20.00	18.63	4	9.3	26.3
	00115336	00112493	24.00 or 26.00	20.00	4	10.6	28.8
	00112469	00112494	30.00 or 33.00	24.00	4	13.7	35.1
	00112470	00112495	36.00	26.00	4	15.7	39.1
	00112471	00112496	42.00	30.00	4	19.7	47.1
	00112472	00112497	48.00	33.00	4	22.8	53.1
	00112473	00112498	52.00	36.00	4	26.0	59.6
	00112474	00112499	60.00	--	4	28.5	64.6

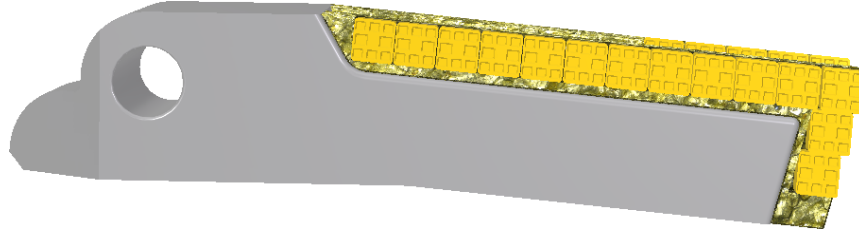
17.00 OD M24 Cutter Knife Selection Chart



Insert Type Knives – High performance							
Item #	Blank Part #	Dressed Part #	To Cut Casing Size		Qty.	Knife Length	Sweep Dia.
			Single String	Multiple String			
13	02847174	02847189	20.00	--	4	7.5	22.6
	02847175	02847190	20.00	18.63	4	9.3	26.3
	02847176	02847191	24.00 or 26.00	20.00	4	10.6	28.8
	02847177	02847192	30.00 or 33.00	24.00	4	13.7	35.1
	02847178	02847193	36.00	26.00	4	15.7	39.1

	120 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

17.00 OD M24 Cutter Knife Selection Chart



	02847179	02847194	42.00	30.00	4	19.7	47.1
	02847180	02847195	48.00	33.00	4	22.8	53.1
	02847181	02847196	52.00	36.00	4	26.0	59.6
	02847182	02847197	60.00	--	4	28.5	64.6

NOTE: Knives are not included in the cutter assembly and must be ordered separately

	121 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

7.12 Optional Nozzle Sizes

Nozzle Sizes – 5940 Series			
Cutter OD	Nozzle Part #	ID	
In.		Fractional	Decimal
4.25 - 5.5	00104423*	8/32	0.25
	00104424	9/32	0.281
	00104425	10/32	0.313
	00104426	11/32	0.344
	00104427	12/32	0.375
	00104428	13/32	0.406
	00104429	14/32	0.438
	00104430	15/832	0.469
	00104432	16/32	0.5

Nozzle Sizes – 6340 Series			
Cutter OD	Nozzle Part #	ID	
In.		Fractional	Decimal
7.25-17.0	00104438*	12/32	.375
	00104439	13/32	.406
	00104440	14/32	.438
	00104441	15/832	.469
	00104442	16/32	.500
	00104443	18/32	.563
	00104444	20/32	.625

***Standard nozzle size included in assembly**

	122 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

7.13 Redress Kits

Redress Kits	
Cutter Body OD	Part #
3.625	00109543
4.25	--
5.5	00109544
7.25	01235640
8.25	00115360
9.5	00102690
12 M23	00114914
12 M24	00115719
17 M24	00115719

	123 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

7.14 Special Tools

This section contains part numbers of special tools used for assembling or disassembling A-1 Casing Cutters.

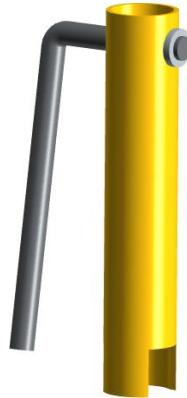


Figure 98

Indicator Wrenches		
Cutter OD	Part #	Description
3.625	01130997	Wrench, indicator A-1 CSG cutter 3-5/8 OD 4-1/2 CSG
4.25		
5.5	00109128	Wrench, indicator casing cutter A-1 7 IN CSG 5-1/2 IN OD
7.25	01235588	Wrench, indicator casing cutter A-1 7-1/4 OD 8-5/8 CSG
8.25	00114039	Wrench, indicator, casing cutter 9-5/8 10-3/4 13-3/8 OD
9.5		
12.0		
17.0		

Knife Sweep Testing Tools		
Cutter OD	Part #	Description
8.25	TBD	Tool, test, knife sweep w/ indicator
12.0 M23	TBD	Tool, test, knife sweep w/ spider
12.0 M24	TBD	Tool, test, knife sweep w/ indicator

	124 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

SECTION 8: TECHNICAL SPECIFICATIONS

8.1 Tool Joint Connections

Casing Cutter Tool Joint Specifications

Cutter Body OD	Connection Size	Connection Type	OD	ID	Recommended Make-up Torque	Torsional Strength	Tensile Strength	Top Sub Part #
in.	in.	Type	in.	in.	ft-lb	ft-lb	lb.	
3.625	2.375		3.5	1.5				109459
	2.375	IF	3.5	1.5	4,420	8,100	348,600	100121
	2.375	IF	3.5	1.5				112309
4.25	2.875	IF	4	2.125				109079
	2.875	IF	4	2.125				109083
	2.875	IF	4	2.125	5,740	9,500	362,600	109084
	2.875	IF	4	2.125				109085
	2.875	IF	4	2.125				109086
5.5	3.5	IF	4.75	2.68	9,050	16,700	528,600	109530
	3.5	IF	4.75	2.688				109064
7.25	4.5	IF	6.75	3.75	19,125	35,000	843,200	113046
8.25	6.625	IF	7.75	3	48,900	88,600	1,903,000	111333
	6.625	REG (MOD)	7.75	3				112356
9.5	6.625	REG (MOD)	7.75	3	48,900	88,600	1,903,000	111333
12 M23	8.625	REG (MOD)	10	3.5	105,000	192,400	3,762,400	114028
12 M24	8.625	REG	10	3.5	81,000	161,400	3,695,300	109136

	125 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

8.2 Tightening Torques

Knife Pin Retainer Screw Torque Chart		
Cutter Body OD	Size	Make-up Torque
in.	in.	
3.625	.190-24 x .500" LG	70 in-lbs.
4.25	.25-20 x .38" LG	166 in-lbs.
5.5	.437-20 x .625" LG	81 ft-lbs.
7.25	.63-18 x .88" LG	238 ft-lbs.
8.25	.310 x .38 "LG	342 in-lbs.
9.5	.310 x .38" LG	342 in-lbs.
12 M23	.310 x .38 "LG	342 in-lbs.
12 M24	.875-14 x .875" LG	650 ft-lbs.
17 M24	.875-14 x .875" LG	650 ft-lbs.

Piston Screw Torque Chart		
Cutter Body OD	Size	Make-up Torque
in.	in.	
8.25	.310-18 x 3.25 "LG	344 in-lbs.
9.5	.310-18 x 3.25" LG	344 in-lbs.
12 M23	.375 x 3.50"LG	351 ft-lbs.
12 M24	.500-13 x 3.50" LG	124 ft-lbs.
17 M24	.500-13 x 3.50" LG	124 ft-lbs.

Stabilizer Pad Screw Torque Chart		
Cutter Body OD	Size	Make-up Torque
in.	in.	
3.625	.500-13 x 10" LG	124 ft-lbs.
4.25	.500-13 x 10" LG	124 ft-lbs.
5.5	.500-13 x 10" LG	124 ft-lbs.

	126 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION NUMBER	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

8.3 Wrench Sizes

Wrench Sizes			
Cutter Body OD	Retainer Cap Wrench Size	Hex Jam Nut Wrench Size	Indicator Bushing wrench Size
(in.)	(in.)	(in.)	(in.)
3.625	1.125	1.125	1.125
4.25	1.25	1.375	1.25
5.5	1.25	1.375	1.25
7.25	1.5	1.75	1.75
8.25	1.5	1.75	1.75
9.5	1.5	1.75	1.75
12 M23	1.5	1.75	1.75
12 M24	1.5	1.75	1.75
17 M24	1.5	1.75	1.75

	127 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter				OEPS	
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

SECTION 9: REFERENCE DOCUMENTS

This section lists all referenced documents for completing this work instruction.

9.1 Reference Sources

- GL-WFT-OEPS-L2-05 Identification, Status & Traceability
- GL-WFT-OEPS-L2-06 Process / Product Realization and Controls
- GL-WFT-OEPS-L3-14 Risk Management
- Weatherford Fishing Technology Best Practices
- GL-INTS-OEPS-L4-498 Assembling M24 Cutter and Measuring Knife Sweep
- GL-INTS-OEPS-L4-499 Verifying M24 Cutter Knife Sweep on Rig Location (Cutter Dressed with Indicator Assembly)
- GL-INTS-OEPS-L4-497 Verifying M24 Cutter Knife Sweep on Rig Location (Cutter Dressed with Spider Only)
- GL-INTS-OEPS-L4-743 Technical Work Instruction – Rotary Hydraulic Casing Cutter, Land/Fixed Installation
- GL-INTS-OEPS-L4-744 Technical Work Instruction – Rotary Hydraulic Casing Cutter, Floating Installation
- GL-INTS-OEPS-L4-745 Technical Work Instruction – Mud Motor Hydraulic Casing Cutter

9.2 Quality and Testing Specifications

- WT-131 Surface Inspection of Milling and Cutting Tools
- WT-103 Wet Magnetic Particle Inspection - API 7
- WC-010 Weatherford Coating Colors
- WT-346 Cosmetic Coatings - Minimal Atmospheric Corrosion Protection
- WT-075 S44 Metal Stamping and Engraving

	128 of 128	Technical Manual: A-1 Internal Hydraulic Casing Cutter					OEPS
DOCUMENT NUMBER	CLASSIFICATION	DOCUMENT LEVEL	REVISION	ISSUE DATE	PREPARED BY	APPROVAL	
GL-INTS-OEPS-L4-739	CONTROLLED	Technical Manual	B.2	05/27/2021	Jeremy Stone	Jeff Toulouse	

SECTION 10: DOCUMENT CHANGE RECORD

Revision Number	Effective Date	Responsible Person	Part Affected	Change Description
B.1	3/4/2021	Jeremy Stone	All	Rewrite manual. See Windchill for detailed description.
B.2	5/27/2021	Jeremy Stone	Inspection Criteria, PNS	Corrected inspection criteria dimensions, PN's for 7.25 OD and 4.25 OD knives